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Program Book

Temple of Heaven

Forbidden City

Summer Palace

2008 IEEE International Ultrasonics Symposium (IUS)

(Including Short Courses)

Beijing International Convention Center (BICC)
Beijing, China, November 2-5, 2008

Sponsored by the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society (UFFC-S)

In Cooperation with the Acoustical Society of China and the Institute of Acoustics, Chinese Academy of Sciences

The Great Wall

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Welcome From the General Chair

***Jian-yu Lu*, Ph.D.**

Welcome to Beijing!

The 2008 IEEE International Ultrasonics Symposium (IUS) will be held in the Beijing International Convention Center (BICC), Beijing, China, from ***November 2-5, 2008***. This will be the first time the IUS goes to Beijing, the capital of China. Beijing is a city of a long history and a great culture. It has served as the capital of China for long periods of times. Therefore, Beijing will be a great tourist attraction for the conference attendees and their guests besides the technical program. As we know, the 2008 Summer Olympics and Paralympics will be held in Beijing in August and September 2008, respectively. Beijing is preparing for this event by building and improving a lot of infrastructure and cleaning up the environment, and is welcoming hundreds of thousands of visitors. Thus, Beijing will become more beautiful after the Olympics. The 2008 IEEE IUS will take advantage of the improved transportation and vastly increased hotel capacity of Beijing after the Olympics. The BICC is located within the Olympic Complex and thus will be convenient for the conference attendees to visit the complex.

The 2008 IEEE IUS will also bring together more closely the ultrasonics communities around the world with the communities of China and East Asia to further the research and development of ultrasonics theories and applications. The 2008 IEEE IUS is expected to be another success in the history of this annual conference that started in the early 1960s and has grown to have more than 1000 attendees in recent years.

Look forward to seeing you in Beijing.

***Jian-yu Lu*, Ph.D.**
General Chair
2008 IEEE International Ultrasonics Symposium

Message from the Technical Program Committee Chair

***Keith A. Wear*, Ph.D.**

Welcome to the IEEE International Ultrasonics Symposium at the Beijing International Convention Center in Beijing, China, November 2-5, 2008.

The first day will feature short courses on topics of current interest in ultrasonics. The next three days will include parallel oral and poster sessions covering: 1) Medical Ultrasonics, 2) Sensors, NDE & Industrial Applications, 3) Physical Acoustics, 4) Microacoustics - SAW, FBAR, MEMS, and 5) Transducers & Transducer Materials. Awards will be given to the top student presentations.

In addition to the technical program, the social and guest programs will allow attendees to explore the rich history and culture of Beijing. There are many interesting sites in Beijing, including Tiananmen Square, the Forbidden City, the Great Wall of China, the Summer Palace, the Temple of Heaven, and the Ming Tomb.

On behalf of the Technical Program Committee, I would like to thank you for joining us for this symposium.

***Keith A. Wear*, Ph.D.**
Technical Chair
2008 IEEE International Ultrasonics Symposium

Symposium Organizing Committee

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Corporate Sponsors

The Following Companies Have Donated Money to the 2008 IEEE International Ultrasonics Symposium:

Thank You: Shanghai Apex Electronics Technology Co. Ltd.

http://www.apex-ultrasound.com

Exhibitors / Schedule

Exhibition Schedule:

Monday, November 3, 2008: 8:00 a.m. - 5:00 p.m.
Tuesday, November 4, 2008: 8:00 a.m. - 5:00 p.m.
Wednesday, November 5, 2008: 8:00 a.m. - 12:00 noon.

List of Exhibitors at the 2008 IEEE International Ultrasonics Symposium as of October 10, 2008 (a total of 20):

- **Beijing Zhongxun Sifang Science & Techonolgy CO. LTD:** *http://www.leepipe.com and http://www.bossanovatech.com/*
- **Bossa Nova Technologies:** *http://www.leepipe.com and http://www.bossanovatech.com/*
- **DASEL:** *http://www.daselsistemas.com and http://ultrascope.info/index.asp*
- **Electronics Innovation Ltd:** *http://www.eandiltd.com/*
- **Ferroperm Piezoceramics A/S:** *http://www.ferroperm.net*
- **IEEE:** *http://www.ieee.org*
- **Imasonic:** *http://www.imasonic.com and http://www.imasonic.fr/*
- **Lecoeur Electronique:** *http://www.lecoeur-electronique.com/*
- **Onda Corporation:** *http://www.ondacorp.com/index1.html*
- **Polytec GmbH:** *http://www.polytec.com/*
- **Precision Acoustics Ltd.:** *http://www.acoustics.co.uk*
- **Prosonic:** *http://www.prosonic.co.kr/*
- **Shanghai Apex Electronics Technology Co. Ltd:** *http://www.apex-ultrasound.com*
- **Sonora Medical Systems:** *http://www.4sonora.com/*
- **Sound Technology Inc.:** *http://www.sti-ultrasound.com*
- **Tegal Corporation:** *http://www.tegal.com/*
- **Terason Ultrasound, Division of Teratech:** *http://www.terason.com/index.asp*
- **Texas Instruments Semiconductor Technologies (Shanghai) Co. Ltd:** *http://www.ti.com.cn*
- **The Piezo Institute:** *http://www.piezoinstitute.com*
- **TRS Technologies, Inc.:** *http://www.trstechnologies.com*

Notes:

- Some of companies that have signed up for the exhibition after July 15, 2008, the deadline for inclusion of their names in this book, may not be listed here.
- A list of all exhibition companies at the Ultrasonics Symposia from 1996-2007 can be viewed via the "Exhibits" link at the conference website at: http://ewh.ieee.org/conf/ius_2008.

Plenary Session

Plenary Session:

8:00 a.m. – 10:00 a.m., Monday, November 3, 2008
Convention Hall 1, Beijing International Convention Center (BICC), Beijing, China

Welcome:

Conference organizers and others
UFFC-S President

Awards and Recognitions:

IEEE Awards:
IEEE Fellow Award 2008

IEEE UFFC Society Awards:
Achievement Award 2008
Distinguished Service Award 2008
Outstanding Paper Award 2007
2008-2009 Distinguished Lecturer Award

Ultrasonics Award:
Rayleigh Award 2008

Note: The order of presentations above is to be determined.

Plenary Speaker:

Title of Presentation:

Acoustics of Traditional Chinese Theatrical Buildings

Author:

Jiqing Wang, Professor, Institute of Acoustics, Tongji University, Shanghai, China 200092, wongtsu@126.com

Abstract:

The traditional Chinese theatrical building is a unique form in the architectural world. The Chinese opera matured as early as the Song and Yuan Dynasties, 11th–14th Centuries, and Chinese theatrical buildings developed accordingly. As the Chinese opera plays on the principle of imaginary actions, no realistic stage settings are required. But since ancient times, Chinese audiences have placed great demands on vocal performances; therefore, the acoustic effect of a theatre is a major concern to the audience as well as the performers.

Pavilion stages, that are small in area, open on three sides, and thrusting into the audience area, are commonly found in traditional

Chinese theatres, both in the courtyard type and the auditorium type. Numerous theatres of the kind built in the Qing Dynasty, 17th–19th Centuries still exist, and in fact at the present day, some are still functioning in good condition. A study on the sound effects of the traditional Chinese theatres has been conducted with the knowledge of modern architectural acoustics.

As the courtyard theatre was a popular type of traditional Chinese theater at that time, its acoustic phenomenon is quite different from that of an enclosed space due to the absence of a roof. Therefore, the classic room acoustics, such as Sabine reverberation formula, is no longer applicable. It is well known that the parameter of reverberation time T60 shows the decay rate only, however it cannot properly characterize the prominent change in the fine structure of the echogram, particularly in case of a large reduction of reflections from the ceiling during the decay process. The sense of so-called 2.5D reverberation time in a courtyard space would differ from that of the equivalent 3D reverberation time in an enclosed space. Based upon the characteristic analysis of the sound field in an open-top space, a preliminary study on the acoustics of the courtyard theatre, both objectively and subjectively, will be introduced.

Additional Materials Related to the Talk:

To get additional information of the talk, please check the link "Plenary Speaker" at the conference website: http://ewh.ieee.org/conf/ius_2008.

Biography of the Author:

Jiqing Wang is a Professor of Acoustics, Institute of Acoustics, School of Science (1981-present), and was also once the Director of Graduate Program on Architectural Science, School of Architecture and Urban Planning (1985-2002), Tongji University, Shanghai, China. He is a Fellow of Acoustical Society of China and a Fellow of Acoustical Society of America. He has served as the Chairman of the National Building Science Committee (1996-2000), President of the Acoustical Society of Shanghai (1987-1991), executive member of the Acoustical Society of China (1988-1998), technical member of the Acoustic Standardization Committee of China since 1980, and editor-in-chief for the Chinese journal of Technical Acoustics (1990-2004). He was the author and co-author of five books on architectural acoustics in Chinese, and published over 130 papers. He has also delivered several plenary, keynotes, invited and professional lectures worldwide.

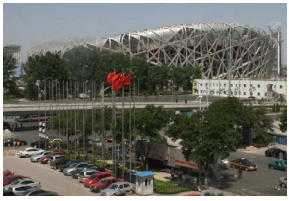
Conference Venue / Business Center / Coat Handling

Conference Venue:

Beijing International Convention Center (BICC)
No. 8, East Beichen Road
Andingmen Wai
North Sihuan Road
Chaoyang District
Beijing 100101, China
Tel. 011-86-10-84985588 or 011-86-10-84980248
Fax: 011-86-10-84970107 or 011-86-10-84980256
Web: http://www.bcghotel.com/english/index.asp

Notes:

- There will be no coat hanging services at BICC.
- The Business Center of BICC for printing, copying, and faxing opens from 8:00 a.m. – 5:00 p.m., Monday through Friday. In addition to BICC, the business centers in both nearby Continental Grand Hotel and Crowne Plaza Hotel also open during the business hours above.
- BICC is about 400 m to the southeast of the National Olympic Stadium that will host the opening ceremony of the 2008 Beijing Olympics. A photo of the National Olympic Stadium taken from the third floor of BICC on May 29, 2008 is shown below.



Conference Registration

Introduction:

The deadline for early conference registration with discount registration fees is ***Tuesday, September 12, 2008*** (midnight, Pacific Standard Time). After September 12, 2008, attendees with credit cards (Visa, Master, or American Express) can continue to register

at higher fees until the conference ends on November 5, 2008. However, registrations via fax or mail will not be accepted after ***Friday, October 17, 2008*** (5:00 p.m., Eastern Standard Time), and these attendees are requested to register on-site with cash. A full conference registration will include Monday lunch (November 3, 2008), Monday evening buffet dinner (November 3, 2008), and Tuesday evening banquet with traditional Chinese shows (November 4, 2008). Each full conference registrant will also get a bag to hold the advance program and abstract books, and will receive a gift from the 2008 IEEE International Ultrasonics Symposium (IUS). Please pay attention to the "Notes" below for additional information on the conference registration. Complete registration information can be found at the conference website: http://ewh.ieee.org/conf/ius_2008.

Please register for a correct registration type. Different badges will be issued for corresponding registration types. Badges and tickets are required for various conference events and for technical sessions.

List of Registration Fees:

Registration Type	By September 12, 2008	After September 12, 2008
(1) IEEE Member:	***$600***	***$700***
(2) Non-IEEE Member:	***$750***	***$850***
(3) Student (Show Student ID at Conference):	***$150***	***$150***
(4) Retiree:	***$150***	***$150***
(5) Life IEEE Member (Show Life Member Card at Conference): **	***$0***	***$0***
(6) One-Day Registration (without DVD Proceedings): *	***$350***	***$350***
A Registrant above May Add: **(1) Additional DVD Proceedings: ***** **(2) Short Courses:** **(3) Guests:**	 ***$75*** ***$150*** ***$50*** **(Student /Retiree)** ***$75***	 ***$75*** ***$150*** ***$50*** **(Student /Retiree)** ***$75***

Notes:

- "*" ***One-Day Registration*** includes event tickets for the day of registration only.
- "**" ***Life Member*** is defined by IEEE as at least 65-year old and the age plus years of IEEE membership should be equal or greater than 100. Life members should show their IEEE Life

Member card or evidence of Life Membership when getting registration materials.

- "***" A ***Full Registration*** (IEEE Member, Non-IEEE Member, Student, Retiree, or Life IEEE Member) will include one DVD conference proceedings. If you need additional DVD proceedings, you may order them when you register. A printed version of the Proceedings will only be available by ordering directly from IEEE after the Symposium.
- A ***Full Registration*** will also include Monday lunch (November 3, 2008), Monday evening buffet dinner (November 3, 2008), and Tuesday evening banquet with traditional Chinese shows (November 4, 2008).
- ***Guest Registration*** includes three guest breakfasts in addition to the three meals above. Guests are NOT allowed to attend any technical sessions except for the Monday morning plenary session.
- For those who register for ***Short Courses Only***, they will NOT get a badge or any conference materials such as books and meal/show tickets, and will NOT be allowed to register for guests or to attend any technical sessions. They can only register on-site on either Saturday, November 1, or Sunday, November 2, 2008.
- As indicated in the table above, ***students*** are required to show their valid identifications (IDs) to the registration desks to qualify for the student rates and get any registration materials.

Online Registration Link:

Important: Because all registration materials will be prearranged sequentially according to your ***Registration Number*** (i.e., the PIN number such as "IEEEIUS-398" in your automatic reply email when you register), to speed up the process for picking up the registration materials, please bring this number with you to the conference.

Online Conference Registration of the 2008 IEEE IUS:
https://www.yesevents.com/ius/account.asp
Questions on Registration: Phone: (800)937-8728;
Fax: (410)559-2217; Email: *2008IEEEIUS@yesevents.com*

Onsite Registration Date and Time:

Date	Beijing Time
Saturday, Nov. 1, 2008:	***6:00 p.m. - 9:00 p.m.***
Sunday, Nov. 2, 2008:	***7:00 a.m. - 7:00 p.m.***
Monday, Nov. 3, 2008:	***7:00 a.m. - 6:00 p.m.***
Tuesday, Nov. 4, 2008:	***7:00 a.m. - 5:30 p.m.***
Wednesday, Nov. 5, 2008:	***7:00 a.m. - 1:00 p.m.***

On-site Registration Procedure (at the 2nd floor of BICC):

- The on-site registration window is from Saturday, November 1, to Wednesday, November 5, 2008, Beijing Time. During this window, the online registration system (see the "Online Registration Link" above) will allow "***Pay Cash On-Site***" option, in addition to paying with credit cards.
- During the on-site registration hours shown in the table below, all attendees should register through computers that have dedicated internet connections at the registration desks or computers of their own via the "Online Registration Link" above to enter their personal data and order items such as short courses and additional DVD proceedings. The registration desks will only collect cash and/or distribute registration materials such as badges and tickets according to your registration items. Please make sure that your personal information entered is accurate because it will be used to send DVD proceedings to you.
- After personal data have been entered online, registration fees can be paid in Chinese Yuans (RMB) at the then prevailing exchange rates to the registration desks, or paid by a Visa, MasterCard, or American Express via on-line kiosks (computers) at the registration desks through the "Online Registration Link" above.
- Students are required to show their valid identifications (IDs) to the registration desks to qualify for the student rates and get registration materials.
- Life IEEE Members are required to show their Life IEEE Member Cards or evidence of Life Members to the registration desks to get registration materials.
- **Short Courses Only** registrants can only register on-site on either Saturday, November 1, or Sunday, November 2, 2008. These attendees will NOT receive a badge or any conference materials such as books and meal/show tickets, and will NOT be allowed to register for guests or to attend any technical sessions.
- Addition information is in the "Notes" above for additional registration information.

PDF Registration Form (via Fax or Mail):

Please check “Conference Registration” link at the conference website for details of registering via fax or regular mail at: http://ewh.ieee.org/conf/ius_2008.

Registration Cancellation and Refund Policy:

Please check “Conference Registration” link at the conference website for details of the cancellation policy at: http://ewh.ieee.org/conf/ius_2008.

Visa Application

Obtaining Visa Application Document (Formal Letter of Invitation):

Nationals from many countries including those from the United States of America need a visa to enter the People's Republic of China. A formal Letter of Invitation recognized by the Chinese Government is required when applying for visa. The deadline for requesting the Letter of Invitation is ***September 30, 2008***, after which a timely deliver of the letter is not guaranteed.

The Letter of Invitation is handled by the China International Conference Center for Science and Technology (CICCST). The CICCST Contact Information is as follows: Phone/Fax: 011-86-10-82116226; Email: *bjsjcenter@sina.com*.

Please check the "Visa Application" link at the conference website for the procedures to get the Letter of Invitation and for advices on applying for visa at: http://ewh.ieee.org/conf/ius_2008.

Conference Hotels

Introduction:

The 2008 IEEE International Ultrasonics Symposium has contracted with the China International Conference Center for Science and Technology (CICCST) to secure discount rates for a group of 7 hotels. The deadline to book the hotel rooms is ***September 15, 2008***, after which the rate will not be guaranteed. The number of rooms in each hotel is limited and will be booked on the "first come first serve" principle.

Please check the "Conference Hotels" link at the conference website for the procedures of booking a hotel room at: http://ewh.ieee.org/conf/ius_2008. The CICCST Contact Information is as follows: Phone/Fax: 011-86-10-82116226; Email: *bjsjcenter@sina.com*.

Table of Hotels:

Hotel Names (and Walking Time)	Prices	Deadlines
Continental Grand Hotel (4-star) (Connected to BICC):	**Standard: *RMB 828 **** **Suite: *RMB 1,188***	***September 15, 2008***
Crowne Plaza Hotel Park View Wuzhou (5-star) (5 minutes):	**Standard: *RMB 1,500*** **Luxury: *RMB 1,700***	***September 15, 2008***

Grand Skylight Catic Plaza Hotel (4-star) (8 minutes):	**Standard: *RMB 1,050*** **Suite: *RMB 1,250***	***September 15, 2008***
Beijing Ao You Hotel (3-star) (10 minutes):	**Single: *RMB 350*** **Standard: *RMB 500*** **Suite: *RMB 800***	***September 15, 2008***
Ya Yun Cun Hotel (3-Star) (12 minutes):	**Standard: *RMB 380*** **Suite: *RMB 480***	***September 15, 2008***
Celebrity International Grand Hotel (5-Star) (18 minutes):	**Standard: *RMB 950*** **Suite: *RMB 1,100***	***September 15, 2008***
Beijing Tibet Hotel (3-Star) (18 minutes):	**Standard: *RMB 650*** **New Part: *RMB 750***	***September 15, 2008***

- "*" "RMB" means Chinese Yuan (CNY). The currency exchange rates will be determined at the time of transactions. To get a rough idea of the exchange rates of Chinese Yuan, one could check at http://www.x-rates.com/d/CNY/table.html.
- The prices in the table include ***one breakfast*** and ***all taxes***. Special services such as laundry, room services, and mini-bars are the responsibilities of attendees.
- Please notice that the tap water in China is not drinkable. Please drink water only from boiled thermal bottles, designated drinking buckets, or bottle water.

Location of Hotels on Maps:

The maps that show the location of the hotels can be downloaded via the "Conference Hotels" link at the conference website: http://ewh.ieee.org/conf/ius_2008.

Notes for Taxi Drivers:

The English-Chinese translation of the hotel address for each of the 7 hotels above can be downloaded via the "Taxi / Bus Help" link at the conference website: http://ewh.ieee.org/conf/ius_2008.

Nearby Shopping and Food

Shopping and Food:

Beijing has more than 100 shopping centers. One of them is the North Star Shopping Center that is located near BICC. There are

also many native Chinese restaurants in walking distances from BICC.

Please follow the "Nearby Shopping / Food" link at the conference website to obtain maps to locate the Shopping Center and food streets at: http://ewh.ieee.org/conf/ius_2008.

Local Transportation

Transportation from Airport to Conference Hotels:

It is relatively inexpensive to travel by taxi in Beijing. In May 2008, it costs about RMB 70 (about $10.30 USD) from the Airport to the Beijing International Convention Center (BICC) (about 24 km). By the time of our conference, subway will be an option to go from the Airport to BICC via two transfers. The cost of subway in May 2008 was RMB 2 (about $0.30 USD) for one-way trip.

There may be shuttle buses to various hotels from the airport. Please check the "Taxi / Bus Help" link at the conference website for more information: http://ewh.ieee.org/conf/ius_2008.

Going to the Center of Beijing:

Although taxi in Beijing is a convenient way for transportation, to avoid traffic jams, it is advised to take subways to the center of Beijing. A subway stop will be built for the Beijing Olympics and it will be in a short walking distance from BICC. For details, please check the "Beijing City / Subway Maps" link at the conference website: http://ewh.ieee.org/conf/ius_2008.

Beijing City and Subway Maps:

Electronic version of Beijing city maps can be downloaded through the link, "Beijing City / Subway Maps", at the conference website: http://ewh.ieee.org/conf/ius_2008. At the following websites, one can get subway maps too: http://www.chinahighlights.com/beijing/map/beijing-subway-map.htm and http://www.beijing-visitor.com/map-of-beijing-subway.htm

Cheaper Air Tickets

Airport Code:

Beijing has only one commercial airport. The airport code is PEK.

Tips to Get Cheaper Air Tickets:

Some tips to get cheaper air tickets are given in the link, "Cheaper Air Tickets", at the conference website: http://ewh.ieee.org/conf/ius_2008.

Beijing Weather

Weather and Coats:

In early November, Beijing is dry (average of 0.45 in precipitation) and shows a continental weather pattern. It will be relatively warm (average around 58° F or 14° C) during the day and cold (average around 38° F or 3° C) after sunset. Thus, a warm jacket may be needed at night if you go outside.

Please follow the "Beijing Weather" link at the conference website for more information: http://ewh.ieee.org/conf/ius_2008.

Monday Lunch

Lunch at Monday Noon:

A lunch from 12:00 noon - 2:00 p.m. on Monday, November 3, 2008, will be provided by the 2008 IEEE International Ultrasonics Symposium for all registered conference attendees (including all guests and exhibitors, but not for those who only register for short courses). The lunch will provide an additional networking opportunity for all conference attendees while they enjoy the Chinese food. The lunch will be held in Convention Hall #1 of the Beijing International Convention Center (BICC). Cash bars will be provided for drinks.

Note: A lunch ticket will be issued and is required for the lunch. Thus, it is advised to keep the ticket with your badge (insert it in the back of the badge) to avoid misplacing or losing it.

Monday Evening Buffet / Social

Monday Evening Buffet Dinner:

A Chinese buffet dinner for social networking will be provided by the 2008 IEEE International Ultrasonics Symposium from 6:30 p.m. - 10:00 p.m. on Monday, November 3, 2008, for all registered conference attendees (including all guests and exhibitors, but not for those who only register for short courses). The dinner will be held in Convention Hall #1 of the Beijing International Convention Center (BICC). Two free tickets for drinks will be provided for each registrant. Cash bars will be available for additional drinks.

Note: In addition to the drink tickets, a dinner ticket will be issued and required for the dinner. Thus, it is advised to keep the tickets with your badge (insert them in the back of the badge) to avoid misplacing or losing them.

Tuesday Evening Banquet / Shows

Tuesday Banquet Dinner and Traditional Chinese Shows:

A banquet dinner with Chinese food and traditional Chinese shows will be provided by the 2008 IEEE International Ultrasonics Symposium from 6:30 p.m. - 10:00 p.m. on Tuesday, November 4, 2008, to entertain all registered conference attendees (including all guests and exhibitors, but not for those who only register for short courses). The shows will expose conference attendees with traditional Chinese culture. The banquet will be held in the elegant theater-style Convention Hall #1 of the Beijing International Convention Center (BICC). Cash bars will be available for drinks.

Note: A banquet/shows ticket will be issued and required for this event. Thus, it is advised to keep the ticket with your badge (insert it in the back of the badge) to avoid misplacing or losing it.

Photos of some traditional Chinese shows can be viewed through the link "Tuesday Dinner/Shows" on the conference website at: http://ewh.ieee.org/conf/ius_2008.

Beijing Local Guest Tours

Beijing Local Tours Organized by CICCST:

The China International Conference Center for Science and Technology (CICCST) has organized three Beijing local tours from November 3-5, 2008 (one for each day), for guests of attendees during the 2008 IEEE International Ultrasonics Symposium (IUS). CICCST will be fully responsible for these tours and thus both the 2008 IEEE IUS and IEEE are not liable to any accidents or any parts of the tours. Individual tours may be cancelled if there are not enough participants for the tours.

Please follow the "Three Local Guest Tours" link at the conference website for the procedures of booking the tours at: http://ewh.ieee.org/conf/ius_2008.

The CICCST Contact Information is as follows: Phone/Fax: 011-86-10-82116226; Email: *bjsjcenter@sina.com*.

Post-Conference China Tours

Post-Conference China Tours:

There are many commercial companies who provide China tours. Conference attendees could use the key words such as "China Tours" in Google to find a large list of companies who provide such tours.

The China International Conference Center for Science and Technology (CICCST) has organized some China tours for the conference attendees of the 2008 IEEE International Ultrasonics Symposium (IUS). CICCST will be fully responsible for these tours and thus both the 2008 IEEE IUS and IEEE are not liable to any accidents or any parts of the tours. Individual tours may be cancelled if there are not enough participants for the tours.

Please follow the "China Tours" link at the conference website for the procedures of booking the tours at: http://ewh.ieee.org/conf/ius_2008.

The CICCST Contact Information is as follows: Phone/Fax: 011-86-10-82116226; Email: *bjsjcenter@sina.com*.

Other Beijing / China Tours

Other Tours:

There are many commercial companies who provide both Beijing tours and China tours. Conference attendees could use the key words such as "Beijing Tours" or "China Tours" in Google to find a large list of companies who provide such tours.

Some information on other Beijing Tours and China Tours can be found via the links, "Other Beijing Tours" and "China Tours", respectively, from the conference website at: http://ewh.ieee.org/conf/ius_2008.

Guest Breakfasts

Three Guest Breakfasts:

The 2008 IEEE International Ultrasonics Symposium will provide three guest breakfasts (Monday-Wednesday, November 3-5, 2008) for all registered conference guests (admitted with Guest badges). The breakfasts will provide an additional networking opportunity among the guests. Please check the message boards near the conference registration desks to find the room and time of the breakfasts before you go. (Tentatively, the breakfasts are scheduled in the Conference Room 311A on the 3rd floor of BICC.)

Exhibitor Breakfast

Wines and Breakfast for Exhibitors:

In the afternoon of Sunday, November 2, 2008, during the exhibition setup on the 2nd floor foyer of the Beijing International Convention Center (BICC), exhibitors (with exhibitor badges) will be provided a couple of wines by the Organizing Committee for them to enjoy.

In addition, on Wednesday, November 5, from 7:00 a.m. - 8:00 a.m. in the Conference Room 311C (on the third floor of BICC), exhibitors (with exhibitor badges) will be provided a breakfast. The breakfast would be a good opportunity for exhibitors to provide feedbacks to the Organizing Committee to help future IEEE IUS to provide better services for exhibitors.

Please check with the registration desk for any changes of the schedule and rooms before you go to the breakfast. An exhibit badge is required to join the breakfast.

Student Breakfast / Meet with President

Networking Opportunity for Students:

All students (with valid student IDs) attending the 2008 IEEE International Ultrasonics Symposium are invited to attend a complimentary breakfast on ***Tuesday, November 4, 2008, from 7:30 a.m. - 9:00 a.m., in Conference Rooms 311B and 311C*** (3rd floor) (tentatively) of the Beijing International Convention Center (BICC). You can locate the room through the Condensed Program or the Floor Plan at the conference website. The final date, time, and room assignments might change and thus please check with the conference registration desk at BICC to confirm before you go. The breakfast will be a good opportunity for students to directly ask questions to the IEEE UFFC society president, UFFC Society officials, and members of the IEEE UFFC Administrative Committee, as well as for students to network with each other.

Coffee Breaks

Coffee Breaks:

There will be coffee breaks for both short courses on Sunday (November 2, 2008) and for the conference from Monday (November 3, 2008) to Wednesday (November 5, 2008). The schedule and locations of the coffee breaks can be found from either the "Condensed Program" link at the conference website: http://ewh.ieee.org/conf/ius_2008, or sheets near the end of this booklet.

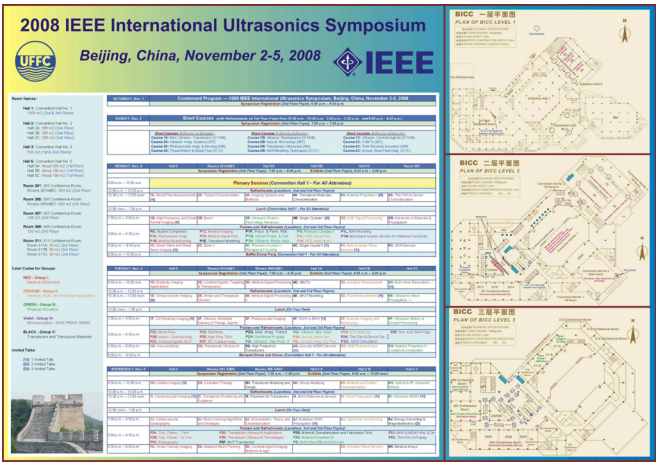
Conference at a Glance Boards

Boards for "Conference at a Glance":

The 2008 IEEE International Ultrasonics Symposium will place two 5 m x 3.5 m boards on the 1st and 2nd floors, respectively, of the Beijing International Convention Center (BICC). These boards will provide attendees information on technical program, floor plan, and poster locations in a single place. To locate the poster

board of a particular poster, please use the poster label such as ***P1A024-01***, where "***024***" after ***P1A*** represents the location of the poster.

For detailed description of poster labels, please check the "Poster Presentation Guide" at the conference website for detail: http://ewh.ieee.org/conf/ius_2008.



Speaker Ready Room

Speaker Ready Room and Schedule:

The schedule of the ***Speaker Ready*** room (***Conference Room 310***) is as follows:

Saturday, Nov. 1: 2:00 p.m. - 5:00 p.m. (for short courses).
Sunday, Nov. 2: 7:30 a.m. - 12:00 noon; 1:00 p.m. - 5:00 p.m.
Monday-Wednesday (Nov. 3-5): 7:30 a.m. - 5:00 p.m.

Please follow closely the instructions on the "Oral Presentation Guide" at the conference website to prepare your presentation and avoid any technical difficulties of your presentations at: http://ewh.ieee.org/conf/ius_2008.

Oral Presentation Guide

Important Information for Oral Presenters:

The Oral Presentation Guide on the conference website provides detailed instructions, tips to avoid technical difficulties, and good practices for your presentations. It is accessible via the link, "Oral Presentation Guide", at the conference website: http://ewh.ieee.org/conf/ius_2008. It is the responsibility of authors to follow the guide closely.

Poster Presentation Guide

Important Guide for Poster Presenters:

The Poster Presentation Guide on the conference website provides information needed to prepare your presentations. It also gives a detailed description of poster labels and their use in finding the locations of poster boards. The layout of the poster boards is shown on the floor plan near the end of this booklet. Please check the link, "Poster Presentation Guide", at the conference website for details: http://ewh.ieee.org/conf/ius_2008.

Session Chairs / Session Summary Form

Duties of Session Chairs:

Duties of session chairs of both oral and poster sessions can be viewed on the conference website via the link "Session Chairs". Session Summary Form is also available from the web at: http://ewh.ieee.org/conf/ius_2008. Session Chairs should fill out the form after each session since any presentations that are not properly presented during the conference will not be included in the conference proceedings. In addition, a list of all session chairs is also on the web.

Message Boards

Message Boards for Attendees:

There will be message boards for attendees near the registration area. Please check the "BICC Floor Plan / Location" link at the conference website or the floor plan at the end of this booklet for details: http://ewh.ieee.org/conf/ius_2008.

Wired and Wireless Internet Access

Internet Access:

Wireless internet will be available to attendees during the conference in the 2nd and 3rd floor foyers of the Beijing International Convention Center (BICC). Tables and chairs will be available on the 2nd floor foyer of BICC for attendees to place their laptops. There will also be a designated internet café that allows attendees to connect Ethernet cables to their computers or use internet-ready conference computers in Conference Room 303 at the third floor of BICC. Since only a few computers are available in the internet café, there may be lines if many people need to use them.

Policy on Photography / Recording

Photography or Recording:

To respect the privacy of presenters and minimize interruptions to the conference, photography and sound recording are not allowed in any technical sessions (both oral and poster) except the plenary session.

Meeting Planner

Individual Meeting Planner:

To individualize the program of the conference, one could use the Meeting Planner that is accessible via the "Meeting Planner" link at the conference website: http://ewh.ieee.org/conf/ius_2008.

Program and Abstract Books

Extra Copies of Program and Abstract Books:

Except for guest registration and registration for Short Course Only, each attendee will receive a print copy of this Program book and an Abstract book. If attendees need additional copies of these books, they could purchase them from the registration desks near the end of the conference in the morning of Wednesday, November 5, 2008. This will ensure that newly registered attendees can get the books first. (To reduce costs, the total number of books printed is limited.)

Electronic Copies of Books:

Electronic copies of both the Program and Abstract books are on the conference website through the links, "Full Program" and "Abstract Book", respectively, at: http://ewh.ieee.org/conf/ius_2008. The electronic copies contain full colors while the printed books do not.

Conference Proceedings

Context-Sensitive Multimedia DVD Proceedings:

This will be the first year that the IEEE International Ultrasonics Symposium produces context-sensitive multimedia DVD proceedings, based on the experiences of our context-sensitive multimedia IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (TUFFC). To prepare and submit proceedings

papers, please follow the link, "Paper Submission" from the conference website at: http://ewh.ieee.org/conf/ius_2008.

Print Copy of the Proceedings:

The 2008 IEEE International Ultrasonics Symposium will not provide a print version of the conference proceedings. Attendees who need such proceedings can order them directly from IEEE after the DVD proceedings are produced.

Proceedings Paper Submission Deadline:

The submission deadline of proceedings papers is ***Midnight, Sunday, November 2, 2008*****, Beijing Time,** which is earlier than that of previous years. Please notice that the deadline is firm to ensure a timely publication of the proceedings.

Important Note:

Because the conference proceedings are a record of the conference papers that are actually presented, to have your paper included (published) in the proceedings, you must present AND defend the paper during the conference by yourself or by someone who is knowledgeable of the presentation subject and is designated by you.

Technical Program Committee

Technical Program Committee (Total 136 Members):

The Technical Program Committee (TPC) of the 2008 IEEE International Ultrasonics Symposium is as follows:

Group 1: Medical Ultrasonics:

Vice Chair of TPC:
Stanislav Emelianov, Ph.D.
University of Texas at Austin
Austin, Texas, U.S.A.

Members:

1. **Olivier Basset:** *CREATIS, Université Lyon I, France*
2. **Geneviève Berger:** *National Centre for Scientific Research (CNRS), France*
3. **Ayache Bouakaz:** *INSERM, Université Tours, France*
4. **Charles Cain:** *University of Michigan, USA*
5. **Richard Chiao:** *Siemens Medical Solutions, USA*
6. **Jan D'hooge:** *Catholic University Leuven, Belgium*
7. **Paul Dayton:** *UNC Chapel Hill and NC State University, USA*
8. **Emad Ebbini:** *University of Minnesota, USA*
9. **David Evans:** *University of Leicester, UK*
10. **Kathy Ferrara:** *University of California Davis, USA*

11. **Stuart Foster:** *University of Toronto, Canada*
12. **James Greenleaf:** *Mayo Clinic College of Medicine, USA*
13. **Anne Hall:** *General Electric Medical Systems, USA*
14. **Christopher Hall:** *Philips Research North America, USA*
15. **Peter Hoskins:** *The University of Edinburgh, UK*
16. **John Hossack:** *University of Virginia, USA*
17. **Kullervo Hynynen:** *University of Toronto, Canada*
18. **Michael F. Insana:** *University of Illinois, Urbana-Champaign, USA*
19. **Jorgen Jensen:** *Technical University of Denmark, Denmark*
20. **Nico de Jong:** *Erasmus Medical Centre and University of Twente, The Netherlands*
21. **Hiroshi Kanai:** *Tohoku University, Japan*
22. **Jeff Ketterling:** *Riverside Research Institute, USA*
23. **Michael Kolios:** *Ryerson University, Canada*
24. **Chris de Korte:** *Radboud University Nijmegen Medical Centre, The Netherlands*
25. **Nobuki Kudo:** *Hokkaido University, Japan*
26. **Pai-Chi Li:** *National Taiwan University, Taipei, Taiwan*
27. **Jian-yu Lu:** *University of Toledo, USA*
28. **Leonardo Masotti:** *Università degli Studi di Firenze, Italy*
29. **Tom Matula:** *University of Washington, USA*
30. **James G. Miller:** *Washington University in Saint Louis, USA*
31. **Kathy Nightingale:** *Duke University, USA*
32. **William O'Brien:** *University of Illinois, Urbana-Champaign, USA*
33. **Georg Schmitz:** *Ruhr-Universität Bochum, Germany*
34. **Ralf Seip:** *Philips Research North America, USA*
35. **Mickael Tanter:** *Laboratoire Ondes et Acoustique, ESPCI, France*
36. **Tom Thomas:** *Boston Scientific, Inc., USA*
37. **Kai Thomenius:** *General Electric's Corporate R&D, USA*
38. **Hans Torp:** *Norwegian University of Science and Technology, Norway*
39. **Piero Tortoli:** *Università degli Studi di Firenze, Italy*
40. **Ton van der Steen:** *Erasmus Medical Center, The Netherlands*
41. **Keith Wear:** *US Food and Drug Administration, USA*

Group 2: Sensors, NDE, and Industrial Application:

Vice Chair of TPC:
Jafar Saniie, Ph.D.
Illinois Institute of Technology
Chicago, Illinois, U.S.A.

Members:

1. **Robert C. Addison:** *Rockwell Science Center, USA*
2. **Walter Arnold:** *Fraunhofer Institute for Nondestructive Testing, Germany*
3. **Nihat Bilgutay:** *Drexel University, USA*
4. **Ramazan Demirli:** *Canfield Scientific, USA*
5. **Eric S. Furgason:** *Purdue University, USA*
6. **David Greve:** *Carnegie Mellon University, USA*
7. **Edward Haeggstrom:** *University of Helsinki, Finland*

8. **Jacqueline Hines:** *Applied Sensor Research and Development Corporation, USA*
9. **Fabien J. Josse:** *Marquette University, USA*
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11. **Pierre T. Khuri-Yakub:** *Stanford University, USA*
12. **Mario Kupnik:** *Stanford University, USA*
13. **Jun-ishi Kushibike:** *Tohoku University, Japan*
14. **Roman Maev:** *University of Windsor, Canada*
15. **Kentaro Nakamura:** *Tokyo Institute of Technology*
16. **Massimo Pappalardo:** *University di Roma TRE, Italy*
17. **Tony Sinclair:** *University of Toronto, Canada*
18. **Bernhard Tittman:** *Pennsylvania State University, USA*
19. **Jiromaru Tsujino:** *Kanagawa University, Japan*
20. **John F. Vetelino:** *University of Maine, USA*
21. **Paul Wilcox:** *University of Bristol, UK*
22. **Donald E. Yuhas:** *Industrial Measurement Systems, Inc., USA*

Group 3: Physical Acoustics:

Vice Chair of TPC:
Yook-Kong Yong, Ph.D.
Rutgers University
Piscataway, New Jersey, U.S.A.

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1. **Robert Aigner:** *TriQuint Semiconductor, USA*
2. **Art Ballato:** *U.S. Army, USA*
3. **Jan Brown:** *JB Consulting, USA*
4. **Weiqiu Chen:** *Zhejiang University, China*
5. **David Hecht:** *DLH Consulting, USA*
6. **Fred Hickernell:** *Retired from Motorola, USA*
7. **Yonkee Kim:** *U.S. Army, USA*
8. **Amit Lal:** *Cornell University, USA*
9. **C.S. Lam:** *Epson Electronics America, Inc., USA*
10. **John Larson:** *Avago Technologies, USA*
11. **Moises Levy:** *Department of Physics, Naples, Florida, USA*
12. **George Mansfeld:** *Russian Academy of Sciences, Russia*
13. **Vitold Poghar:** *Scientific and Technological Center of Unique Instrumentation of Russian Academy of Science, Russia*
14. **Valeri Proklov:** *Institute of Radio Engineering & Electricity, Russia*
15. **Edgar Schmidhammer:** *EPCOS, Germany*
16. **Susan Schneider:** *Marquette University, USA*
17. **Bikash Sinha:** *Schlumberger-Doll Research, USA*
18. **Ji Wang:** *Ningbo University, China*
19. **Qing-Ming Wang:** *University of Pittsburgh, USA*

Group 4: Microacoustics - SAW, FBAW, MEMS:

Vice Chair of TPC:
Peter Smith, Ph.D.
McMaster University
Hamilton, Ontario, Canada

Members:

1. **Sylvain Ballandras:** *LPMO, France*
2. **Kushal Bhattacharjee:** *RF Micro Devices, USA*
3. **Sergey Biryukov:** *Leibniz Institute for Solid State and Materials Research Dresden (IFW), Germany*
4. **Jidong Dai:** *RF Monolithics, USA*
5. **Yasuo Ebata:** *Fujitsu Media Device Ltd., Japan*
6. **Gernot Fattinger:** *Sawtek, USA*
7. **Ken-ya Hashimoto:** *Chiba University, Japan*
8. **Daniel Hauden:** *CNRS_LPMO, France*
9. **Mitsutaka Hikita:** *Kogakuin University, Japan*
10. **Chunyun Jian:** *Nortel Networks, Canada*
11. **Jyrki Kaitila:** *Infineon, Germany*
12. **Jan Kuypers:** *University of California, USA*
13. **Ken Lakin:** *TFR Technologies, USA*
14. **Don Malocha:** *University of Central Florida, USA*
15. **David Morgan:** *Impulse Consulting, UK*
16. **Hiroyuki Odagawa:** *Tohoku University, Japan*
17. **Mauricio Pereira da Cunha:** *University of Maine, USA*
18. **Viktor Plessky:** *GVR Trade SA, Switzerland*
19. **Bob Potter:** *Vectron International, USA*
20. **Leonard Reindl:** *Albert-Ludwigs-University Freiburg, Germany*
21. **Arne Ronnekleiv:** *Norwegian Institute of Technology, Norway*
22. **Richard Ruby:** *Avago Tech, USA*
23. **Clemens Ruppel:** *EPCOS AG - SAW RD SAM, Germany*
24. **Takahiro Sato:** *Samsung, Japan*
25. **Marc Solal:** *Sawtek, USA*
26. **Robert Weigel:** *Friedrich-Alexander University, Germany*

Group 5: Transducers and Transducer Materials:

Vice Chair of TPC:
Scott Smith, Ph.D.
GE Global Research
Niskayuna, New York, U.S.A.

Members:

1. **Sandy Cochran:** *University of Dundee, UK*
2. **Christopher Daft:** *Siemens Medical Solutions, USA*
3. **Levent Degertekin:** *Georgia Institute of Technology, USA*
4. **Charles Emery:** *Mirabilis Medica, USA*
5. **John Fraser:** *Philips Medical Systems, USA*
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9. **Clyde Oakley:** *W. L. Gore, USA*
10. **Omer Oralkan:** *Stanford University, USA*
11. **Paul Reynolds:** *Weidlinger Associates, USA*
12. **Yongrae Roh:** *Kyungpook National University, Korea*
13. **Ahmad Safari:** *Rutgers University, USA*

14. **Mark Schafer:** *Sonic Tech Inc., USA*
15. **Thomas Shrout:** *Pennsylvania State University, USA*
16. **Kirk Shung:** *University of Southern California, USA*
17. **Stephen Smith:** *Duke University, USA*
18. **Wallace Smith:** *Office of Naval Research, USA*
19. **Yasuhito Takeuchi:** *Kagoshima University, Japan*
20. **Vasandara Varadan:** *University of Arkansas, USA*
21. **Jian Yuan:** *Boston Scientific, USA*
22. **Qiming Zhang:** *Pennsylvania State University, USA*
23. **Qifa Zhou:** *University of Southern California, USA*

Invited Speakers

Invited Talks (21 in Total):

Please click on the links to jump to the abstracts on web:

Group 1: Medical Ultrasonics:

- Talk #1.1 (1I-3): ***Jan D'hooge (Presenter)***, *Piet Claus, Jens-Uwe Voigt, and Frank Rademakers*, **"Functional imaging of the heart,"** Department of Cardiovascular diseases, Catholic University of Leuven, Leuven, Belgium. (Abstract ID: 1185)
- Talk #1.2 (1C-5): ***Mathias Fink (Presenter)**, *Mickael Tanter, **Jeremy Bercoff, and **Jacques Souquet*, **"Supersonic Shear Wave Elasticity Imaging,"** *ESPCI, Laboratoire Ondes et Acoustique, Paris, France. **Supersonic Imagine, Aix en Provence, France. (Abstract ID: 908)
- Talk #1.3 (1B-3): ***F. Stuart Foster***, **"Micro-ultrasound Takes Off (In the Biological Sciences),"** Imaging Research, Sunnybrook Health Sciences Centre and University of Toronto, Toronto, Ontario, Canada. (Abstract ID: 590)
- Talk #1.4 (1H-3): ***Hiroshi Kanai (Presenter)**, **Junya Ohkohchi, and **Hideyuki Hasegawa*, **"Ultrasonic Imaging of 3-Dimensional Propagation of Electric Excitation and Vibrations in Human Heart,"** *Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan. **Graduate School of Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan. (Abstract ID: 36)
- Talk #1.5 (1F-5): ***Richard Prager (Presenter)**, *Andrew Gee, Graham Treece, Joel Lindop, and Nick Kingsbury*, **"Deconvolution and elastography based on 3D ultrasound,"** Department of Engineering, University of Cambridge, United Kingdom. (Abstract ID: 111)
- Talk #1.6 (1A-1): ***Hairong Zheng (Presenter)** and **Robin Shandas*, **"Ultrasound Particle Velocimetry: an Emerging Technique in Cardiology,"** *Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, Guangdong, China. **University of Colorado at Boulder, Boulder, CO, USA. (Abstract ID: 1178)

Group 2: Sensors, NDE, and Industrial Application:

- Talk #2.1 **(5E-1): *Saul Jacobson*, "New Developments in Ultrasonic Gas Analysis and Flowmetering,"** 403 Huon Road, TAS 7004, Australia. (Abstract ID: 1017)
- Talk #2.2 **(5I-1): *Claire Prada (Presenter)* and *Mathias Fink*, "Invariants of the time reversal operator and ultrasonic applications,"** Laboratoire Ondes et Acoustique, CNRS, Université Paris 7, ESPCI, Paris, France. (Abstract ID: 1187)
- Talk #2.3 **(5C-1): **Michael Thompson (Presenter)* and ***Scott Ballantyne*, "Ultra High Frequency Acoustic Wave Detection of HIV Antibody,"** *Chemistry, University of Toronto, Toronto, Ontario, Canada. **Maple Biosciences, Toronto, Ontario, Canada. (Abstract ID: 130)

Group 3: Physical Acoustics:

- Talk #3.1 **(6I-1): *Eun Kim*, "Piezoelectric MEMS for Audio Signal Transduction, Microfluidic Management, Resonant Mass Sensing, and Movable Surface Micromachined Structures,"** Electrical Engineering - Electrophysics, University of Southern California, Los Angeles, CA, USA. (Abstract ID: 647)
- Talk #3.2 **(5A-4):** **Bikash Sinha and* *****Vivian Pistre (Presenter)*, "Applications of Sonic Waves in the Estimation of Petrophysical, Geophysical and Geomechanical Properties of Subsurface Rocks,"** *Mathematics and Modeling, Schlumberger-Doll Research, Cambridge, MA, USA. **Well Placement and Safety, Schlumberger Beijing Geoscience Centre, Beijing, China. (Abstract ID: 304)
- Talk #3.3 **(5A-3): *Yue-Sheng Wang*, "Interfacial Waves and Stability at the Frictional Sliding Interface between Two Solids,"** Institute of Engineering Mechanics, Beijing jiaotong University, Beijing, China. (Abstract ID: 1177)
- Talk #3.4 **(6D-1): **Yook-Kong Yong (Presenter)*, **Mihir Patel, and ***Masako Tanaka*, "Theory, and Experimental Verifications of the Resonator Q and Equivalent Electrical Parameters due to Viscoelastic, Conductivity and Mounting Supports Losses,"** *Civil and Environmental Engineering, Rutgers University, Piscataway, New Jersey, USA. **Epson Toyocom, Japan. (Abstract ID: 258)

Group 4: Microacoustics – SAW, FBAR, MEMS:

- Talk #4.1 **(4F-1): *Robert Aigner*, "SAW and BAW Technologies for RF Filter Applications: A Review of the Relative Strengths and Weaknesses,"** TriQuint Semiconductor, Apopka, Florida, USA. (Abstract ID: 405)
- Talk #4.2 **(4J-1): **Ken-ya Hashimoto (Presenter)*, **Yiliu Wang, **Tatsuya Omori, **Masatsune Yamaguchi, ***Michio Kadota, ***Hajime Kando, and ***Teruhisa Shibahara*, "Piezoelectric Boundary Wave Devices: Their Underlying Physics and Applications,"** *Dept. EEE, Chiba University, Chiba, Chiba, Japan. **Murata MFG, Co. Ltd., Yasu, Shiga, Japan. (Abstract ID: 21)

- Talk #4.3 (4G-1): ***C.S. Lam***, **"A Review of the Recent Development of MEMS and Crystal Oscillators and Their Impacts on the Frequency Control Products Industry,"** Integrated Device Technology, Inc., Andover, MA, USA. (Abstract ID: 407)

Group 5: Transducers and Transducer Materials:

- Talk #5.1 (4B-1): *Sung-Min Lee, Dong-Ho Kim, and* ***Ho-Yong Lee (Presenter)***, **"PMN-PZT Single Crystals and Composites for Transducer Applications,"** Ceracomp Co., Ltd., Sunmoon University, Asan, Chungnam, South Korea. (Abstract ID: 326)
- Talk #5.2 (4B-4): *Dan Zhou and* ***Haosu Luo (Presenter)***, **"Vibration Mode and Relevant Ultrasonic Applications of Ferroelectric Single Crystals Pb(Mg1/3Nb2/3)O3-PbTiO3,"** Shanghai Institute of Ceramics, CAS, Shanghai, China. (Abstract ID: 877)
- Talk #5.3 (4C-1): ***Wei Ren (Presenter)**, *Peng Lin, *Zheng Wang, *Xiaoqing Wu, *Peng Shi, *Xi Yao, **Qifa Zhou, **Dawei Wu, **Benpeng Zhu, and **K. Kirk Shung*, **"Piezoelectric Thin and Thick Films for Transducer Applications,"** *Electronic Materials Research Laboratory, Xi'an Jiaotong University, Xi'an, Shanxi, China. **NIH Transducer Resource Center and Department of Biomedical Engineering, University of Southern California, Los Angeles, CA 90089, USA. (Abstract ID: 723)
- Talk #5.4 (6J-3): ***Stewart Sherrit***, **"The Physical Acoustics of Energy Harvesting,"** Advanced Technologies Group, Instrument Mechanical Engineering Section, Jet Propulsion Laboratory, Pasadena, CA, USA. (Abstract ID: 90)
- Talk #5.5 (6J-4): ***Orest G. Symko (Presenter)*** *and Myra Flitcroft*, **"Ultrasonic Thermoacoustic Energy Conversion,"** Department of Physics, University of Utah, Salt Lake City, Utah, USA. (Abstract ID: 1181)

Invited Clinical Session Speakers

Invited Clinical Session Speakers:

The 2008 IEEE International Ultrasonics Symposium has included a special clinical session to show how medical ultrasound technologies are used in clinical practices. This special session consists of the following half-hour invited presentations. Please click on the links below to jump directly to the abstracts. (Note: This session is organized by Dr. Stuart Foster, University of Toronto, Canada.)

- Talk #1 (1E-1): ***Peter Burns***, **"Making Microbubbles Work for Ultrasound: Technical and Broader Challenges,"** Dept Medical Biophysics, University of Toronto, Toronto, ON, Canada. (Abstract ID: 957)

- **Talk #2 (1E-3): *Yuxin Jiang*, "The Clinical Application of Ultrasound Contrast Imaging,"** Department of Diagnostic Ultrasound, Pekin Union Medical College Hospital, Beijing, China. (Abstract ID: 836)
- **Talk #3 (1E-2): *Stephanie Wilson*, "The Role of Contrast Enhanced Ultrasound (CEUS) in Oncology,"** Department of Diagnostic Imaging, Foothills Medical Centre, Calgary AB, Canada. (Abstract ID: 1189)

Talk #1:

Title: Making Microbubbles Work for Ultrasound: Technical and Broader Challenges

Peter Burns, Dept Medical Biophysics, University of Toronto, Toronto, ON, Canada.

Abstract:

Background, Motivation and Objective: Although it has been 10 years since microbubble contrast agents were first approved for clinical use, adoption has been slow, in spite of considerable technical advances and many successful clinical studies.

Statement of Contribution/Methods: Methods for contrast specific imaging exploit the nonlinear response of bubbles at or near resonant excitation. Simple filtering for higher harmonics has given way to broadband methods using phase and/or amplitude modulation of a sequence of pulses. With suitable detection methods, linear, nonlinear, moving and stationary targets can all be segmented from the echo and shown in real time. The tendency of bubbles to disrupt at low peak negative pressures also offers a potential role for coded excitation on transmit. Deliberate disruption of bubbles with a few high MI pulses can clear the image plane and allow measurement of its replenishment by contrast offering a unique way to quantify microvascular flow and perfusion volume.

Results: At least 3 million clinical contrast studies have been performed: safety and tolerability have proven excellent. Clinical applications have focused on areas in which ultrasound already plays an important diagnostic role. In cardiology, contrast can aid visualisation of the endocardium, especially important in wall motion studies, and has been shown to improve the accuracy of stress echo. It can also image and measure myocardial perfusion in real time, at rest and with stress, with spatial resolution superior to the current nuclear medicine standard, SPECT. In radiology, perfusion can be imaged in many organs, but work has concentrated on the liver, where contrast can help characterise focal lesions with an accuracy comparable to contrast CT and MRI. It also aids in lesion detection, in real time guidance of interventions such as RF ablation and in monitoring response to tumor therapy, especially using the new antiangiogenic agents.

Discussion and Conclusions: In spite of demonstrated efficacy and safety, widespread adoption into the clinic has been slow. Two

reasons are proposed. First, although bubbles are approved for perfusion imaging in more than 60 countries, the US, which has approved no radiology indications, is not among them. Second, while contrast ultrasound is often less expensive than competing modalities, physician reimbursement may be less too, dampening enthusiasm among practitioners. We conclude that future clinical studies should focus on applications unique to microbubbles, exploiting, for example, their confinement to the blood pool and the ability to image them in real time. Approval of a perfusion indication by the US FDA is crucial. Widely available, robust contrast specific imaging modes are needed. The intriguing capacity of bubbles to potentiate therapies, including drug delivery, should be pursued. For diagnosis, translation of microbubble contrast applications to clinical practice may come more quickly in cost driven rather than profit-driven healthcare systems.

Dr. Peter Burns is Professor and Chairman of Medical Biophysics and Professor of Radiology at the University of Toronto and Senior Scientist at Sunnybrook Health Sciences Centre, Toronto. He received his degree in Mathematical Physics in 1973 and, following a postgraduate fellowship in History and Philosophy of Science, a PhD in Radiodiagnosis in 1983. He subsequently held faculty positions in Radiology at Yale University and Thomas Jefferson University in Philadelphia. He moved to Toronto in 1991. He was part early efforts to detect flow in small blood vessels with Doppler, including the first ultrasonic detection of tumor blood flow. He subsequently worked on Doppler methods for flow detection and hemodynamic measurement in the abdomen and pelvis. In 1988 he began research with microbubbles as ultrasound contrast agents, focusing on the development of nonlinear methods such as harmonic, pulse inversion and amplitude modulation imaging as well as their clinical applications in perfusion imaging of the heart, abdomen and tumors. He has published more than 130 papers, 4 books and holds several patents in diagnostic ultrasound. He received the World Federation of Ultrasound in Medicine and Biology Pioneer Award (1988); the Ian Donald Gold Medal for Technical Achievement (2002); Innovation and Excellence Trophy of the Société Canadienne de Radiologie (2002), was the Euroson Lecturer of the European Society for Ultrasound in Medicine (2005); the Donald McVicar and Brown Lecturer of British Medical Ultrasound Society (2006) and is the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society Distinguished Lecturer for 2008.

Talk #2:

Title: The Clinical Application of Ultrasound Contrast Imaging

Yuxin Jiang, Department of Diagnostic Ultrasound, Pekin Union Medical College Hospital, Beijing, China.

Abstract:

Background, Motivation and Objective: Contrast-enhanced ultrasound imaging is the area of greatest interest in ultrasound

medicine currently. The recent improvements of contrast agent and the contrast specific scanning techniques have given new possibilities for the further research and clinical application. We are having researches in the basic theory study and further clinical applications in China, so that ultrasound contrast imaging can be better recognized and widely applied in the clinical practice.

Statement of Contribution/Methods: The introduction of second-generation microbubble contrast agents, such as SonoVue and self-made perfluorocarbon ultrasound contrast agent, and the advent of specialized imaging techniques enabled real-time contrast-enhanced imaging. In our study, Sonovue and the gray scale harmonic imaging technique were adopted to evaluate the characteristic contrast enhanced pattern of liver, kidney, gynecology, breast and thyroid lesions, etc.

Results: Our clinical research shows that contrast enhanced ultrasounographic imaging can improve the diagnostic potential of sonographic examinations in different clinical applications, including the better observation of small vessels, the real-time assessment of the blood perfusion pattern in an organ or area of interest, with a significantly higher detection rate and diagnostic accuracy especially for the tumor of liver, kidney and gynecology. Otherwise, contrast enhanced ultrasound imaging holds the potential for a better visualization and diagnosis of peripheral vascular and some deep-located vessels, such as carotid, brain arteries and renal arteries, etc. The area of great promise and growth also lies in the clinical research of breast and thyroid.

Discussion and Conclusions: With the fast development and the intrinsic advantages of contrast enhanced ultrasound imaging, it is gaining more and more popularity. Ultrasound doctors should pay efforts to do further research in this state of art technique, which may open a new prospect for the ultrasound medicine.

Dr. Yuxin Jiang is a director of the Department of Diagnostic Ultrasound, Peking Union Medical College Hospital, Beijing, China; Professor of the Chinese Academy of Medical Sciences & Peking Union Medical College in Beijing, China; President of the Society of Ultrasound in Medicine of Chinese Medical Association. Dr. Jiang has lead a team from China to present at ASUM ASM 2006 on topics relating to ultrasound guided therapy, e.g., use of contrast in ultrasound, and various interventional techniques. Dr. Jiang will discuss topics relating to ultrasound guided therapy, e.g., HIFU and Radio Frequency, use of contrast agents in ultrasound, and various interventional techniques now used in China.

Talk #3:

Title: The Role of Contrast Enhanced Ultrasound (CEUS) in Oncology

Stephanie Wilson, Department of Diagnostic Imaging, Foothills Medical Centre, Calgary AB, Canada.

Abstract:

Background, Motivation and Objective: The oncology patient is susceptible to the development of tumor masses in many locations and their detection and diagnosis is usually within the realm of diagnostic imaging. While ultrasound may show tumors, additional imaging with CT and or MR scan is generally required for their confident diagnosis. We address the tremendous contribution of contrast enhanced ultrasound (CEUS) in the imaging of this population.

Statement of Contribution/Methods: Contrast agents for ultrasound are comprised of tiny bubbles of gas in a supporting shell. Their intravenous injection results in tissue perfusion, analogous to that seen on contrast enhanced CT and MR, and also incredible vessel visualization more similar to that seen with angiography. These attributes allow for improved detection and characterization of tumors in many parts of the body.

Results: Characterization of tumors of the liver is the most accepted indication for CEUS where it is complimentary to CT and MR scan. Liver lesion detection and also the difficult question of diagnosis of hepatocellular carcinoma are further accepted strategies for the use of CEUS as the detection of small nodules in the cirrhotic liver on screening sonography is enhanced by the performance of CEUS at the time of nodule detection. Detection of liver masses is also improved by CEUS as the addition of contrast agent increases the conspicuity of liver masses on sonography such that more and smaller masses may be detected than at baseline.

CEUS is also valuable when added to intraoperative liver ultrasound, contributing to management decisions for the patient undergoing surgery. Further, CEUS is a critical component of radiofrequency ablation (RFA) techniques especially when performed at the time of the procedure where it may reduce the requirement for repeat procedures performed for incomplete ablation. CEUS is suitable for monitoring patients with prior RFA or transarterial chemoembolization (TACE).

CEUS contributes to the characterization of renal masses, especially cystic RCC, where vascularity in septae and nodules is shown with a sensitivity surpassing both CT and MR scan. Further, in other locations such as the pancreas, spleen, ovary, prostate and breast, CEUS may show the presence of vascularity in real-time with the resolution of standard gray-scale ultrasound.

Discussion and Conclusions: CEUS changes totally the role of ultrasound in the evaluation of the patient with cancer. CEUS may be performed on any organ with a suitable acoustic window where the addition of vascular information may contribute to diagnosis. Its performance is independent of renal function making it a perfect first choice for the characterization of all masses in the oncology patient. To confirm that a mass is a malignant tumor or to confirm that it is not, CEUS is an easily performed and readily available technique. For these reasons, CEUS deserves a fundamental role in the future of oncological diagnosis.

Dr. Stephanie R. Wilson was born and educated in Western Canada but has made Toronto her home for the duration of her professional life. In 2007, she relocated to her home province where she is now Professor of Radiology at the University of Calgary and a member of the department of Diagnostic Imaging at Foothills Medical Centre, Calgary, CANADA. Dr Wilson has invested her research, academic and practice pursuits on imaging of the gastrointestinal tract, pancreas and liver. Since 1992, Dr Wilson has collaborated with Dr. Peter Burns from University of Toronto/Medical Imaging Research on the investigation of microbubble contrast agents for the evaluation of their use in Medical Imaging. Their major accomplishments to date include their investigation of the diagnosis and characterization of tumors of the liver. Burns and Wilson shared a grant from the Canadian Institute for Health Research (CHIR) for these investigations.

Apart from her research pursuits, Dr. Wilson has been the recipient of annual prestigious University of Toronto Faculty of Medicine teaching awards including the Colin R. Woolf Award for Excellence in Continuing Education Teaching in 1992, and the Wightman-Berris Academy Award for Individual Teaching Excellence in 2005. She has authored over 100 peer reviewed publications and many book chapters and is an editor of the highly successful two volume reference on ultrasound, entitled Diagnostic Ultrasound, often referred to as the "Bible of Ultrasound", now in its third edition. Dr Wilson served as the first woman president of the Canadian Association of Radiologists and was also the recipient of their Gold Medal for her contribution to radiology.

Short Courses

Short Courses (a Total of 12):

8:00 A.M. - 12:00 Noon, Sunday, November 2, 2008:

- **Short Course 1A (Conference Room 311A/B): Medical Ultrasound Transducers**, ***Douglas G. Wildes*** and ***L. Scott Smith***, GE Global Research Center, Niskayuna, NY, USA.
- **Short Course 2A (Conference Room 307): Ultrasound Imaging Systems: from Principles to Implementation**, ***Kai E. Thomenius***, GE Global Research Center, Niskayuna, NY, USA.
- **Short Course 3A (Conference Room 308): Photoacoustic Imaging and Sensing**, ***Stanislav Emelianov***, Biomedical Engineering Department, University of Texas at Austin, USA.
- **Short Course 4A (Conference Room 311C): Estimation and Imaging of Tissue Motion and Blood Velocity**, ***Hans Torp*** and ***Lasse Lovstakken***, Department of circulation and medical imaging, Norwegian University of Science and Technology, Trondheim, Norway.

1:00 P.M. - 5:00 P.M, Sunday, November 2, 2008:

- **Short Course 1B (Conference Room 311A/B): Ultrasound Elastography: Quantitative Approaches**, ***Jeffrey Bamber** and ****Paul Barbone***, *Institute of Cancer Research and Royal Marsden Hospital, UK. **Boston University, USA.
- **Short Course 2B (Conference Room 307): Acoustic Microscopy - Fundamentals and Applications**, ***Roman Gr. Maev***, ****Naohiro Hozumi***, *****Kazuto Kobayashi***, and ******Yoshifumi Saijo***, *Centre for Imaging Research and Advanced Materials Characterization, University of Windsor, Ontario, Canada. **Department of Electrical & Electronic Engineering, Aichi Institute of Technology, Toyota, Japan. ***Honda Electronics Co. Ltd., Aichi, Japan. ****Tohoku University, Sendai, Japan.
- **Short Course 3B (Conference Room 308): Therapeutic Ultrasound**, ***Lawrence A. Crum***, Applied Physics Laboratory, University of Washington, Seattle, WA, USA.
- **Short Course 4B (Conference Room 311C): SAW Modeling Techniques**, ***Victor P. Plessky***, GVR Trade SA, Bevaix, Switzerland.

6:00 P.M. - 10:00 P.M, Sunday, November 2, 2008:

- **Short Course 1C (Conference Room 311A/B): Ultrasound Contrast Agents: Theory and Experiment**, ***Nico de Jong** and ****Michel Versluis***, *Erasmus MC, The Netherlands. **University of Twente, The Netherlands.
- **Short Course 2C (Conference Room 307): CMUTs: Theory, Technology, and Applications**, ***B.T. Khuri-Yakub***, ***Ömer Oralkan***, and ***Mario Kupnik***, E.L. Ginzton Laboratory, Stanford University, USA.
- **Short Course 3C (Conference Room 308): Time Reversal Acoustics**, ***Mathias Fink***, École Supérieure de Physique et de Chimi de la Ville de Paris, France.
- **Short Course 4C (Conference Room 311C): Acoustical Near-Field Imaging**, ***Walter Arnold***, Fraunhofer Institute for Non-Destructive Testing, Saarbrücken, Germany.

Short Course 1A (8:00 A.M. - 12:00 Noon, Sunday, November 2, 2008):

Course Title: Medical Ultrasound Transducers

Douglas G. Wildes and ***L. Scott Smith***, GE Global Research Center, Niskayuna, NY, USA.

Course Description: 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 4D imaging transducers for medical ultrasound. Dr. Wildes has 23 issued patents and 19 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 43 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.

Short Course 2A (8:00 A.M. - 12:00 Noon, Sunday, November 2, 2008):

Course Title: Ultrasound Imaging Systems: from Principles to Implementation

Kai E. Thomenius, GE Global Research Center, Niskayuna, NY, USA.

Course Description: The design of medical ultrasound imagers is undergoing important changes brought about by advances in semiconductors and signal/image procession technologies coupled with changes in medical practice and the utilization of medical imaging in general. Unique aspects of data acquisition and processing in the ultrasound scanner enable 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 the generation of clinically useful images. 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; this has enabled significant

miniaturization of scanners. 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, USA. 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. In addition, he 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 beam formation and miniaturization of ultrasound scanners, propagation of acoustic waves in inhomogeneous media, 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.

Short Course 3A (8:00 A.M. - 12:00 Noon, Sunday, November 2, 2008):

Course Title: Photoacoustic Imaging and Sensing

Stanislav Emelianov, Biomedical Engineering Department, University of Texas at Austin, USA.

Course Description: 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 imagining 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 Science. 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.

Short Course 4A (8:00 A.M. - 12:00 Noon, Sunday, November 2, 2008):

Course Title: Estimation and Imaging of Tissue Motion and Blood Velocity

Hans Torp and ***Lasse Lovstakken***, Department of circulation and medical imaging, Norwegian University of Science and Technology, Trondheim, Norway.

Course Description: This course provides a basic understanding of the physical principles and signal processing methods for estimation of blood and tissue motion. The course begins with an overview of currently used techniques for velocity estimation using pulsed- and continuous-wave Doppler, and color flow imaging. Statistical models for the received signal, as well as commonly used velocity estimators will be developed. Simulation methods for ultrasound signals from moving blood and tissue will be discussed and examples in Matlab will be shown. The suppression of clutter from slowly moving targets is central to all processing schemes and will be given special attention. Also, current methods of tissue velocity and strain rate imaging will be given special elaboration. More advanced topics will also be covered. An overview of current adaptive filter schemes for attenuating clutter will be given, and 2-D / 3-D vector velocity estimation techniques will also be presented. The principles and practical limitations of these methods will be discussed, and potential applications in blood velocity imaging and myocardial velocity- and strain imaging 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 Univesity 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 application in medical ultrasound imaging.

Lasse Lovstakken received the Masters degree in Engineering Cybernetics in 2002 and a PhD in Medical Technology in 2007, both at the Norwegian University of Science and Technology, in Trondheim, Norway. He is currently working as a post doctoral research fellow at the Department of Circulation and Medical Imaging at the Norwegian University of science and Technology. His research interests include signal and image processing with applications in ultrasound imaging, with a special focus on imaging of blood and tissue movement.

Short Course 1B (1:00 P.M. - 5:00 P.M., Sunday, November 2, 2008):

Course Title: Ultrasound Elastography: Quantitative Approaches

Jeffrey Bamber and ****Paul Barbone***, *Institute of Cancer Research and Royal Marsden Hospital, UK. **Boston University, USA.

Course Description: There is evidence that ancient cultures extending back thousands of years used palpation to assess the mechanical properties of tissues, and thus detect and characterise disease or injury. Simple palpation continues to be of value in modern medicine, both practiced by doctors and as a technique for self-examination, but palpation is limited to a few accessible tissues and organs, and the interpretation of the information sensed by the fingers is highly subjective. Ultrasound elastography aims to display images that are related to a broad range of parameters that describe the spatial and temporal variations in tissue viscoelasticity. It does so by processing time-varying echo data to extract the spatial and/or temporal variation of a stress-induced tissue displacement or strain. In recent years the method early form has emerged as a real-time imaging modality available as an option on several commercial ultrasound systems, and is starting to prove clinically valuable, for example in breast cancer diagnosis. Nevertheless, in its present form it remains a strongly subjective technique and continues, as with palpation, to require considerable interpretive skills to be learnt. There are good reasons to believe that a more quantitative and objective analysis will lead to clinically more valuable measures of tissue composition, function or state, with images that are easier to interpret. This short course will outline some of the limitations and pitfalls of current elastographic methods, and will then introduce the opportunities for, potential value of and challenges for making elastography more quantitative. It will then review work on modeling tissues and their mechanical behavior, the fundamentals of ultrasound elastographic experimental techniques required for quantitative imaging, the use of static, vibrational and impulsive loads, the inverse methods for measurement and image reconstruction, methods for stress measurement, and shear wave propagation methods. This will lead to a discussion of the likely consequences for medical applications and future instrumentation. Examples of results will be presented

for a range of medical application areas and for various mechanical characteristics such as shear modulus, nonlinearity, anisotropy, friction at mechanical discontinuities, as well as properties that determine viscoelastic and poroelastic behavior.

Jeffrey Bamber is head of the Ultrasound and Optics Physics Team, and is Senior Tutor for the Research Degrees Program at The Institute of Cancer Research Sutton, U.K. He has an honorary position as a Medical Physicist within the Royal Marsden Hospital, Sutton. He received a BSc in Physics from the University of Kent at Canterbury in 1972, an MSc in Biophysics and Bioengineering from the University of London in 1974, and a PhD in Biophysics in 1980, also from the University London. He continued as a research scientist following his PhD at the Institute of Cancer Research, becoming a team leader in 1986. His research interests have included: acoustic characteristics of tissues, ultrasound image speckle and texture, speckle reduction, ultrasound aberration, psychophysics of perception of information in ultrasound images and movies, ultrasonic methods in breast cancer, measurement of tumor volume and blood flow, ultrasound tissue motion tracking, tissue elasticity imaging, temperature imaging, high frequency ultrasonic imaging and tissue characterization, ultrasound and optical methods in skin cancer, microbubble contrast agents, ultrasound guidance of focused ultrasound therapy and radiotherapy, ultrasound in radiation dosimetry, microbubbles as gene therapy vectors, and molecular imaging. Prizes for work to which he has contributed include 5 best paper awards in peer reviewed journals and 2 book publishing awards for excellence. He is a past vice-president of the International Society for Skin Imaging, a past president of the International Association for Breast Ultrasound, and currently serves on the Council of the British Medical Ultrasound Society.

Paul E. Barbone is Associate Professor of Mechanical Engineering at Boston University. He received Bachelors of Engineering Science and Mechanics from Georgia Institute of Technology in 1986, a Masters of Mechanical Engineering in 1987 from Stanford University, and a PhD in Mechanical Engineering from Stanford University in 1992. He did postdoctoral research at the University of Cambridge (1992-1993) in the Department of Applied Mathematics and Theoretical Physics, served as lecturer at School for Advanced Studies in Industrial and Applied Mathematics, Valenzano, Italy (1992), and was Haddow Fellow and visiting Researcher at the Institute of Cancer Research, Sutton, UK (2000-2001). His research approach is mathematical and theoretical analysis. He works mainly on forward and inverse problems in acoustics and solid mechanics, and sidelines in the analysis of computational formulations. Over the past several years, his research focus has been inverse problems in "Biomechanical Imaging:" imaging the mechanical properties of tissues in situ and in vivo. His research work has been recognized through prizes from US National Science Foundation, US Office of Naval Research, Acoustical Society of America, and the J. William Fulbright Foundation.

Short Course 2B (1:00 P.M. - 5:00 P.M., Sunday, November 2, 2008):

Course Title: Acoustic Microscopy - Fundamentals and Applications

***Roman Gr. Maev**, ****Naohiro Hozumi**, *****Kazuto Kobayashi**, and ******Yoshifumi Saijo**, *Centre for Imaging Research and Advanced Materials Characterization, University of Windsor, Ontario, Canada. **Department of Electrical & Electronic Engineering, Aichi Institute of Technology, Toyota, Japan. ***Honda Electronics Co. Ltd., Aichi, Japan. ****Tohoku University, Sendai, Japan.

Course Description: The goal of this course is to introduce the fundamentals and major principles of scanning acoustic microscopy. This course aims to describe advanced acoustic microscopy methods for investigating the microstructure and physical mechanical properties of materials of different nature, from crystalline to biomaterials. The materials discussed during this course cover most aspects of physical principles and applications of high-resolution acoustic microscopy and reflects the modern research status in this field. Included are different topics in physical acoustics, ultrasound, solid state physics, materials characterization and nondestructive evaluation. Special attention will be paid to the principle and application of several types of scanning acoustic microscopes for medical and biological use. Progress in digital measurement and pulse technology has remarkably upgraded the performance of these types of microscopes and this will be described within the course. The sound speed microscope which conventionally used tone-burst and analog phase detector was improved in accuracy, stability and operation ability. It can be used for characterization of tissue sliced and mounted on a slide glass. It can visualize not only acoustic impedance but bulk modulus, attenuation constant and density. The acoustic impedance microscope can visualize the acoustic impedance of a cross section in touch with a plastic substrate by transmitting an acoustic beam from the rear side of the substrate. This type of microscopy has an advantage that the measurement can be performed in vivo, introducing no contamination into the target system. With a wide frequency range up to 400 MHz, both types of microscopes can observe with a special resolution as fine as cell structure. Discussed will be the principle of the sound speed and acoustic microscopes driven by a wide band pulse and several examples of observation of cerebella tissue and cultured cells will be shown. In addition, there will be a presentation of recent results in acoustic microscopy technology development achieved by Honda Electronics (Japan) and Tessonics (Canada). The detail of the hardware and software of those microscopes that are commercially available will be described. The prototype microscopes have been improved a lot after being commercialized. The hardware, software and biomedical applications of these microscopes will be described with a large number of examples as additional illustrations. This course will conclude with an overview of the future perspectives of the general principles of microscopic observation using various ultrasound waves as well as the most promising future applications.

Roman Gr. Maev received his Ph.D. from the Physical Institute of the Russian Academy of Sciences in 1973 and his D.Sc. in acoustic microscopy from the Russian Academy of Sciences, Moscow, in 2002. From 1994 to 1997, he held a post as Director of the Acoustic Microscopy Center of the Russian Academy of Sciences, then established a Centre for Imaging Research and Advanced Material Characterization at the University of Windsor, Canada. He is currently a Full Faculty Professor at the Physics Department of the same University and since 2001 the Chairholder of the NSERC/DaimlerChrysler/Industrial Research Chair in Applied Solid State Physics and Material Characterization. Professor Maev's research interests focus on the fundamentals of condensed matter, physical acoustics, ultrasonic imaging, and acoustic microscopy. He has published numerous books, more than 300 scientific papers, and holds twenty patents.

Naohiro Hozumi was born in Kyoto, Japan on April 2, 1957. He received his B.S., M.S. and Ph.D. degrees in 1981, 1983 and 1990 from Waseda University. He was engaged in Central Research Institute of Electric Power Industry (CRIEPI) from 1983 to 1999. He was an associate professor of Toyohashi University of Technology from 1999 to 2006. Since 2006, he has been a professor of Aichi Institute of Technology. He has been engaged in the research in insulating materials and diagnosis for high voltage equipment, acoustic measurement for biological and medical applications, etc. He was awarded in 1990 and 1999 from IEE of Japan for his outstanding research papers. He is a member of IEEE, IEE of Japan and the Acoustic Society of Japan.

Kazuto Kobayashi was born in Aichi, Japan on June 8, 1952. He received B.S. degree in electrical engineering from Shibaura Institute of Technology, Tokyo, Japan in 1976. He is currently a director of Department of Research and Development at Honda Electronics Co. Ltd. in Toyohashi, Japan. His research activities and interests include medical ultrasound imaging, signal processing and high frequency ultrasound transducers.

Yoshifumi Saijo was born in Yokohama, Japan on July 21, 1962. He received the M.D. and the Ph.D. degrees in 1988 and 1993 from Tohoku University. He is currently a Professor of the Department of Biomedical Imaging at the Graduate School of Biomedical Engineering of Tohoku University. He is concurrent with Institute for International Advanced interdisciplinary Research of Tohoku University and the Department of Cardiovascular Surgery of Tohoku University Hospital. His main research interests are assessment of biomechanics of cells and tissues by high frequency ultrasound and clinical ultrasonic evaluation of cardiovascular system with intravascular ultrasound and transesophageal echocardiography. He was awarded in 1997 for his outstanding research paper in Ultrasound in Medicine and Biology, the official journal of the World Federation of Ultrasound in Medicine and Biology. He is a member of The Japan Society of Ultrasonics in Medicine, Japanese Society of Echocardiography and Japan Circulation Society.

Short Course 3B (1:00 P.M. - 5:00 P.M., Sunday, November 2, 2008):

Course Title: Therapeutic Ultrasound

Lawrence A. Crum, Applied Physics Laboratory, University of Washington, Seattle, WA, USA.

Course Description: The use of ultrasound in medicine is now quite commonplace, especially with the recent introduction of small, portable and relatively inexpensive, hand-held diagnostic imaging devices. Moreover, ultrasound has expanded beyond the imaging realm, with methods and applications extending to novel therapeutic and surgical uses. These applications broadly include: Tissue ablation, acoustocautery, body contouring, site-specific and ultrasound mediated drug activity, extracorporeal lithotripsy, and the enhancement of natural physiological functions such as wound healing and tissue regeneration. A particularly attractive aspect of this technology is that diagnostic and therapeutic systems can be combined to produce totally non-invasive, image-guided therapy. This general lecture will review a number of these exciting new applications of ultrasound and address some of the basic scientific questions and future challenges in developing these methods and technologies for general use in our society. We shall particularly emphasize the use of High Intensity Focused Ultrasound (HIFU) in the treatment of benign and malignant tumors as well as the introduction of acoustic hemostasis, especially in organs which are difficult to treat using conventional medical and surgical techniques.

Lawrence A. Crum is currently Principal Physicist in the Applied Physics Laboratory and Research Professor of Bioengineering and Electrical Engineering at the University of Washington. 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, the World Council on Ultrasonics, and of the Board of the International Commission for Acoustics.

Short Course 4B (1:00 P.M. - 5:00 P.M., Sunday, November 2, 2008):

Course Title: SAW Modelling Techniques

Victor P. Plessky, GVR Trade SA, Bevaix, Switzerland.

Course Description: This course provides introduction to the design techniques of SAW devices. The course includes and will discuss: a) SAW excitation on piezoelectrics by linear charges, elementary theory of the Interdigital Transducer (IDT) with non-reflecting electrodes, design of typical IDTs on quartz and LiNb,

delay lines characteristics and matching issues. b) Single Phase Unidirectional Transducer (SPUDT)- design and applications. c) Propagation of SAW in periodic structures, coupling of modes (COM) model, and simulation with COM model of IDTs and reflectors. d) Modeling of SAW devices based on Green's function software. e) CRF/DMS filter design – examples of device simulation; optimization software f) Synchronous resonators, extraction of COM parameters, and ladder filters design. g) Design of SAW-tags. During the lecture, the attendee will see demonstrations of design processes for typical filter specifications. The COM model will be presented in details sufficient for practical use. The course will conclude with a review of unsolved problems and challenges in the SAW devices design area.

Victor P. Plessky was born near Gomel, Belarus. He now lives and works in Switzerland. Before leaving the USSR in 1991, he worked as a head of laboratory in IRE of Academy of Sciences in Moscow region in Russia. He received his Ph.D. degree from the Moscow Institute of Physics and Technology in 1978, and received his Doctor of Science degree in physics and mathematics from the Institute of Radio-engineering and Electronics (IRE RAS, 1987). He received the Full Professor title from the Russian Government in1995. For the last 16 years he has worked in Switzerland, first as a Principal Scientist at the company Micronas SA. He now is an owner and CEO of the consulting company GVR Trade SA. His main spheres of interest are theory of microacoustics, surface acoustic waves (SAW) theory and devices, devices for signal filtering and frequency control, SAW sensors and SAW-tags. A few of his works in periodic structures have received wide recognition. Dr. V. Plessky worked as Visiting Professor in HUT (Finland), Freiburg University (Germany), Uppsala University (Sweden), EPFL (Switzerland). He has authored or co-authored over 200 papers and many patents. For many years he serves ad TPC member of the IEEE Ultrasonics Symposium.

Short Course 1C (6:00 P.M. - 10:00 P.M., Sunday, November 2, 2008):

Course Title: Ultrasound Contrast Agents: Theory and Experiment

Nico de Jong and ****Michel Versluis***, *Erasmus MC, The Netherlands. **University of Twente, The Netherlands.

Course Description: 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 sub-harmonic 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. fundamentals, harmonic, subharmonic and superharmonic and multi-pulse methods like the pulse inversion, power modulation etc. and new methods including chirp excitation and radical modulation. f) Molecular imaging and ultrasound mediated drug delivery: Interaction between mammalian cells and ultrasound in the presence of (targeted) 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 behavior 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. Verluis teaches various courses in Fluid Mechanics, one of them focusing on the physics of bubbles.

Short Course 2C (6:00 P.M. - 10:00 P.M., Sunday, November 2, 2008):

Course Title: CMUTs: Theory, Technology, and Applications

B.T. Khuri-Yakub, ***Ömer Oralkan***, and ***Mario Kupnik***, E.L. Ginzton Laboratory, Stanford University, USA.

Course Description: This course provides basic knowledge and understanding of capacitive micromachined ultrasonic transducers (CMUTs) and their applications. After a short background discussion of previous implementations of capacitive ultrasonic transducers, we will provide all the information necessary for the successful design of a CMUT: The simple parallel plate capacitor transducer and its electrical equivalent circuit model will be

explained in detail, including the derivation of all essential design equations, and the theoretical device performance limits. An approximate analytical model, that better represents the realizable membrane of a CMUT, will be presented next. By discussing a possible beyond pull-in point operation regime (collapse mode), the motivation for a more sophisticated finite element model is given, and the key techniques of finite element analysis based CMUT designs are explained and demonstrated using brief examples. After explaining these techniques, we compare the two main domains in which a CMUT can operate, i.e. as an airborne device and in immersion. Only for immersed operation the periodic structure of a CMUT array needs to be considered to minimize parasitic cross-talk effects. Two acoustic cross-talk modeling techniques will be discussed for that purpose. Then, the two main CMUT fabrication techniques, i.e. sacrificial release and direct wafer bonding, are explained and compared to each other. Next, we discuss device characterization which will cover optical displacement, electrical input impedance, then acoustical measurements of output pressure, receive sensitivity, impulse response and dynamic range. Then, non-conventional CMUT designs are addressed, such as piston CMUTs, CMUTs with various cell-shapes, and CMUTS with non-uniform cavities. Besides an overview of several CMUT applications, we conclude the course by giving two detailed design examples, one for an airborne device for chemical/biological sensing applications and one for medical imaging applications. A comprehensive copy of the presentation will be made available to the course participants.

Butrus (Pierre) T. Khuri-Yakub is a Professor of Electrical Engineering at Stanford University. He received the BS degree in 1970 from the American University of Beirut, the MS degree in 1972 from Dartmouth College, and the Ph.D. degree in 1975 from Stanford University, all in electrical engineering. He was a Research Associate (1965-19780 then Senior Research Associate (1978-1982) at the E. L. Ginzton Laboratory of Stanford University and was promoted to the rank of Professor of Electrical Engineering in 1982. His current research interests include medical ultrasound imaging and therapy, micromachined ultrasonic transducers, smart bio-fluidic channels, microphones, ultrasonic fluid ejectors, and ultrasonic nondestructive evaluation, imaging and microscopy. He has authored over 400 publications and has been principal inventor or co-inventor of 76 US and International issued patents. He was awarded the Medal of the City of Bordeaux in 1983 for his contributions to Nondestructive Evaluation, the Distinguished Advisor Award of the School of Engineering at Stanford University in 1987, the Distinguished Lecturer Award of the IEEE UFFC society in 1999, a Stanford University Outstanding Inventor Award in 2004, and a Distinguished Alumnus Award of the School of Engineering of the American University of Beirut in 2005.

Ömer Oralkan received his B.S. degree from Bilkent University, Ankara, Turkey, in 1995, his M.S. degree from Clemson University, Clemson, SC, in 1997, and his Ph.D. degree from Stanford University, Stanford, CA, in 2004, all in electrical engineering. He joined the research staff at the E. L. Ginzton Laboratory of Stanford University in 2004 as an Engineering

Research Associate. He was promoted to the rank of Senior Research Engineer in 2007. His past and present research interests include analog and digital circuit design, semiconductor device physics and fabrication, micromachined sensors and actuators, and medical imaging. His current research focuses on the design and implementation of integrated systems for catheter-based medical imaging applications, photoacoustic imaging, and chemical and biological sensor arrays. Dr. Oralkan has authored and co-authored over 80 publications and received the 2002 Outstanding Paper Award of the IEEE Ultrasonics, Ferroelectrics, and Frequency Control Society. He is a member of the IEEE, SPIE, and AIUM.

Mario Kupnik is a research associate of electrical engineering at Stanford University. He received his Diplom Ingenieur degree in electronics engineering from Graz University of Technology, Austria in 2000. After working as an Analog Design Engineer for Infineon Technologies AG, he received his Ph. D. in physical measurement techniques at the University of Leoben, Austria in 2004, and then completed a two-year PostDoc at the Khuri-Yakub Ultrasonics Group, Stanford University in February 2007. Mario Kupnik has more than five years teaching experience in the field of electrical engineering, two of these years at the graduate level. His present research interests include the design, modeling, fabrication, and application of micromachined sensors and actuators, with a main focus on capacitive micromachined ultrasonic transducers mainly for air-coupled applications. Examples are transit-time gas flowmeters for hot and pulsating gases, ultrasonic nondestructive evaluation using noncontact ultrasound, nonlinear acoustics, and bio/chemical gas sensing applications (electronic nose). He holds several patents relating to analog front-end circuits for contactless smart card systems, ultrasonic transit-time gas flowmeters, and CMUT fabrication techniques. He serves as a technical program committee member of the IEEE Ultrasonics Symposium.

Short Course 3C (6:00 P.M. - 10:00 P.M., Sunday, November 2, 2008):

Course Title: Time Reversal Acoustics

Mathias Fink, École Supérieure de Physique et de Chimi de la Ville de Paris, France.

Course Description An acoustic Time Reversal Mirror (TRM) refocuses an incident acoustic field to the position of the original source regardless of the complexity of the medium between this "probe" source and the TRM. TRM's have now been implemented in a variety of physical scenarios from MHz ultrasonics with order centimeter aperture size to hundreds/thousands of Hz in ocean acoustics with order hundred meter aperture size. Common to this broad range of scales is a remarkable robustness exemplified by observations at all scales that the more complex the medium between the probe source and the TRM, the sharper the focus. The potential for applications in many areas of acoustics is quite high. The objective of this course is to provide the acoustical physics overview and description of the experimental implementation of time reversal and phase conjugate processes as related to

ultrasonics and imaging, nondestructive testing, medical ultrasonics, propagation in random media, room acoustics, waveguides, and ocean acoustics.

Mathias Fink is a Professor of Physics at the École Supérieure de Physique et de Chimi de la Ville de Paris (ESPCI) and at Paris 7 University (Denis Diderot), France. In 1990 he founded the laboratory Ondes et Acoustique at ESPCI. In 2002, he was elected at the French Academy of Engineering and in 2003 at the French Academy of Science. His area of research is concerned with the propagation of waves in complex media and the development of numerous instruments based on this basic research. The domain of applicability of these instruments is vast: medical imaging and therapy, non-destructive testing, underwater acoustics, seismology, telecommunications and instrumentation. He has a long history of collaboration with industry. He works with companies in a wide variety of sectors including medical, aeronautics, underwater acoustics, nuclear, metallurgy, and instrumentation. He pioneered many innovative approaches based on time-reversal mirrors and on the development of a new imaging concept: transient elastography. He has over 40 patents, 300 publications, edited 2 books and supervised 48 PHD students.

Short Course 4C (6:00 P.M. - 10:00 P.M., Sunday, November 2, 2008):

Course Title: Acoustical Near-Field Imaging

Walter Arnold, Fraunhofer Institute for Non-Destructive Testing, Saarbrücken, Germany.

Course Description: Acoustical imaging modes can be classified into near-field, focusing techniques, and holographic techniques. This four hour course discusses, in particular, near-field imaging modes. Examples are ultrasonic force microscopy, atomic force acoustic microscopy, and impedance imaging such as Fokker-bond tests. Their resolution in terms of the antenna size (i.e. probe size) and wavelength employed both at the surface and in the depth of the component to be imaged, are discussed. Besides the underlying contrast mechanism, the course also covers the signal analysis and capture techniques. Finally a comparison is made to classical acoustical imaging based on focusing probes, holographic imaging, and phased arrays principles. The examples are underlined by applications in non-destructive testing.

Walter Arnold has authored and co-authored about 300 publications (200 in Non-Destructive Testing, others in Solid State and Applied Physics and Materials Science), holds 10 patents and has edited two books besides organizing several conferences both on a national and international level. He has guided 140 master theses and 27 PhD theses. Dr. Arnold was the head of the research department at Fraunhofer-Institute for Non-Destructive Testing (IZFP) in Saarbrücken, Germany until his retirement at the end of 2007. Parallel to his position at the IZFP, Dr. Arnold was and still is professor of Materials Science at the Saarland University, Dept.

Materials. He is an Honorary Fellow Indian Institute of Non-Destructive Testing, Fellow Institute of Physics, London.

Student Competition Finalists

Student Paper Competition Finalists (a Total of 21):

This is the 8th year of the student paper competition (started from the 2001 IEEE International Ultrasonics Symposium in Atlanta, Georgia, USA). 21 Student Paper Competition finalists have been selected during the 2nd Technical Program Committee meeting of the 2008 IEEE International Ultrasonics Symposium, which was held from June 14-15, 2008 in Chicago, Illinois, USA. The finalists should check the award selection criteria at the link: Student Paper Competition for the requirements of their presentations.

Final Winners of the Student Paper Competition:

Seven final winners of the student paper competition will be selected from the 21 finalists above. The criteria of the awards are in the link "Student Paper Competition" at the conference website: http://ewh.ieee.org/conf/ius_2008.

Group 1: Medical Ultrasonics (9 finalists):

- **Finalist #1.1 (PS001-01) (3F-2):** ***Bo Wang (Presenter)***, *Andrei Karpiouk, and Stanislav Emelianov*, **"Design of Catheter for Combined Intravascular Photoacoustic and Ultrasound Imaging,"** Biomedical Engineering, University of Texas at Austin, Austin, TX, USA. (Abstract ID: 309)
- **Finalist #1.2 (PS002-02) (2F-6):** ***Linsey C. Phillips (Presenter)***, **Alexander L. Klibanov, **Doug K. Bowles, *Brian. R. Wamhoff, and *John A. Hossack*, **"Intra-Vascular Ultrasound (IVUS) Delivery of DNA Via Microbubble Carriers to an Injured Artery In vivo,"** *University of Virginia, Charlottesville, VA, USA, **University of Missouri, Columbia, MO, USA. (Abstract ID: 1094)
- **Finalist #1.3 (PS003-03) (3E-5):** ***Egon J.W. Merks (Presenter)***, *Nicolaas Bom, Nico de Jong, and Antonius F.W. van der Steen*, **"Quantitative Bladder Volume Assessment on the Basis of Nonlinear Wave Propagation,"** Biomedical Engineering, Erasmus MC, Rotterdam, Netherlands. (Abstract ID: 291)
- **Finalist #1.4 (PS004-04) (2D-3):** ***Hong Chen (Presenter)***, *Andrew A. Brayman, Michael R. Bailey, and Thomas J. Matula*, **"Microbubble dynamics in microvessels: Observations of microvessel dilation, invagination and rupture,"** Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA. (Abstract ID: 609)
- **Finalist #1.5 (PS005-05) (2H-4):** ****Adam Maxwell (Presenter)***, **Charles Cain, **Hitinder Gurm, ***J. Brian Fowlkes, and *Zhen Xu*, **"Non-invasive thrombolysis induced by histotripsy pulsed cavitation ultrasound**

therapy," *1Department of Biomedical Engineering, University of Michigan, Ann Arbor, Michigan, USA, **Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan, USA, ***Department of Radiology, University of Michigan, Ann Arbor, Michigan, USA. (Abstract ID: 68)

- **Finalist #1.6 (PS006-06) (2I-5):** ***Jerome GATEAU (Presenter)**, **Laurent MARSAC, *Mathieu PERNOT, *Jean-Francois AUBRY, *Mickael TANTER, *Mathias FINK*, **"Reaching the optimal focusing and steering capabilities of transcranial HIFU arrays based on time reversal of acoustically induced cavitation bubble signature,"** *Laboratoire ondes et Acoustique, INSERM, CNRS UMR 7587, ESPCI, PARIS, France, **SUPERSONIC IMAGINE, Aix-en-Provence, France. (Abstract ID: 248)
- **Finalist #1.7 (PS007-07) (2K-5):** ***Shun-Li Wang (Presenter)** and Pai-Chi Li*, **"High Frame Rate Adaptive Imaging Using Coherence Factor Weighting and the MVDR Method,"** National Taiwan Univ., Taipei, Taiwan. (Abstract ID: 1083)
- **Finalist #1.8 (PS008-08) (1K-5):** ***Torbjørn Hergum (Presenter)**, *Thomas Renhult Skaug, **Knut Matre, and Hans Torp*, **"Estimation of Valvular Regurgitation Area by 3D HPRF Doppler,"** *Department of circulation and medical imaging, Norwegian University of Science and Technology, Trondheim, Norway, **Institute of Medicine, University of Bergen, Bergen, Norway. (Abstract ID: 1040)
- **Finalist #1.9 (PS009-09) (2E-6):** ***John Ballard (Presenter)** and Emad Ebbini*, **"Image-Guided Refocusing of Dual-Mode Ultrasound Arrays(DMUAs),"** University of Minnesota, USA. (Abstract ID: 384)

Group 2: Sensors, NDE, and Industrial Application (3 finalists):

- **Finalist #2.1 (PS010-10) (5C-2):** ***Donald McCann (Presenter)**, Mitchell Wark, Paul Millard, David Neivandt, and John Vetelino*, **"The Detection of Chemical and Biological Analytes Using a Monolithic Spiral Coil Acoustic Transduction Sensor,"** University of Maine, Orono, ME, USA. (Abstract ID: 131)
- **Finalist #2.2 (PS011-11) (5G-5):** ***Sean Mc Sweeney (Presenter)** and **WMD Wright*, **"Improving the Bandwidth of Air Coupled Capacitive Ultrasonic Transducers Using Selective Networks,"** *Electrical and Electronic Engineering Dept, University College Cork, National University of Ireland, Mallow, Cork, Ireland, **Electrical and Electronic Engineering, University College Cork, National University of Ireland, Cork, Cork, Ireland. (Abstract ID: 589)
- **Finalist #2.3 (PS012-12):** ***Montserrat Parrilla (Presenter)**, Jose Brizuela, Jorge Camacho, Alberto Ibañez, Patricia Nevado, and Carlos Fritsch*, **"Dynamic focusing thorough arbitrary geometric interfaces,"** Instituto de Automática Industrial (CSIC), La Poveda (Arganda), Madrid, Spain. (Abstract ID: 154)

Group 3: Physical Acoustics (3 finalists):

- Finalist #3.1 (PS013-13) (6E-5): ***Satyanarayan Bhuyan (Presenter)*** *and Junhui Hu*, **"Wireless Drive of a Piezoelectric Plate by Dipole Antenna,"** Nanyang Technological University, Singapore. (Abstract ID: 72)
- Finalist #3.2 (PS014-14) (6H-5): ***Pierre-Adrien Mante (Presenter)***, *Arnaud Devos, and Jean-François Robillard*, **"Towards thin film complete characterization using picosecond ultrasonics,"** IEMN-CNRS, France. (Abstract ID: 593)
- Finalist #3.3 (PS015-15) (6H-6): ***Taisuke Yoshida (Presenter)**, *Mami Matsukawa, and **Takahiko Yanagitani*, **"Simultaneous observation of induced longitudinal and shear acoustic phonons by Brillouin Scattering,"** *Faculty of Engineering, Doshisha University, Kyotanabe, Japan, **Department of Applied Physics, Nagoya Institute of Technology, Nagoya, Japan. (Abstract ID: 1015)

Group 4: Microacoustics - SAW, FBAW, MEMS (3 finalists):

- Finalist #4.1 (PS016-16): ***Gunilla Wingqvist (Presenter)***, *Lilia Arapan, Ventsislav Yantchev, and Ilia Katardjiev*, **"Temperature Compensation of Thin AlN Film Resonators utilizing the Lowest order Symmetric Lamb mode,"** Solid State Electronics, Uppsala University, Uppsala, Sweden. (Abstract ID: 620)
- Finalist #4.2 (PS017-17) (4J-2): ***Yiliu Wang (Presenter)***, *Ken-ya Hashimoto, Tatsuya Omori, and Masatsune Yamaguchi*, **"A Full-Wave Analysis of Surface Acoustic Waves Propagating on a SiO2 Overlay/Metal Grating/Rotated YXLiNbO3 Substrate Structure,"** Graduate School of Engineering, Chiba University, Chiba, Chiba, Japan. (Abstract ID: 217)
- Finalist #4.3 (PS018-18) (4I-5): ***Evgeny Milyutin (Presenter)***, *and Paul Muralt*, **"Shear mode BAW resonator based on c-axis oriented AlN thin film,"** Ecole Polytechnique Federale de Lausanne, Switzerland. (Abstract ID: 522)

Group 5: Transducers and Transducer Materials (3 finalists):

- Finalist #5.1 (PS019-19) (4D-3): ***Hanne Martinussen (Presenter)***, *Astrid Aksnes, and Helge E. Engan*, **"Investigation of charge diffusion in Capacitive Micromachined Ultrasonic Transducers (CMUTs) using optical interferometry,"** Electronics and Telecommunications, Norwegian University of Science and Technology, Trondheim, Norway. (Abstract ID: 274)
- Finalist #5.2 (PS020-20) (3G-4): ***Dawei Wu (Presenter)**, *Qifa Zhou, **Changgeng Liu, **Frank Djuth, and *K Kirk Shung*, **"High-frequency (>100MHz) Piezoelectric PZT Film Micromachined Ultrasonic Arrays,"** *NIH Transducer

Resource Center and Department of Biomedical Engineering, University of Southern California, USA, **Geospace Research, Inc, USA. (Abstract ID: 858)

- **Finalist #5.3 (PS021-21): *Andrew Logan (Presenter)*** *and John Yeow*, **"1-D CMUT Imaging Arrays Fabricated Using a Novel Wafer Bonding Process,"** Systems Design Engineering, University of Waterloo, Waterloo, Ontario, Canada. (Abstract ID: 418)

Student Travel Support

List of Student Travel Support Awardees:

The list of the student travel support awardees is accessible through the link, "Student Travel Support", at the conference website: http://ewh.ieee.org/conf/ius_2008. To actually receive the award money, all criteria listed in the link above should be met. When all the conditions above are met, the money will be available for the students to pick up on the registration desks in the Beijing International Convention Center during the conference.

IEEE UFFC Society (UFFC-S) Officials

UFFC Society Officials:

Title	Name	Affiliation
President:	Susan Trolier-McKinstry	*The Pennsylvania State University*
President-Elect:	R. Michael Garvey	*Symmetricom, Beverly, MA*
VP, Ferroelectrics:	Thomas R. Shrout	*The Pennsylvania State University*
VP, Frequency Control:	Samuel Stein	*Timing Solutions Corp., Boulder, CO*
VP, Ultrasonics:	Jacqueline H. Hines	*Applied Sensor R&D Corp., Annapolis, MD*
VP, Publications:	Donald Yuhas	*Industrial Measurement Systems Inc., IL*
Secretary-Treasurer:	Daniel S. Stevens	*Vectron International - Hudson, NH*

UFFC-S Elected Administrative Committee (AdCom) Members

Elected AdCom Members:

Term	Name	Affiliation
2008 - 2010	Rich Ruby	*Avago Technologies, San Jose, CA, USA*
2008 - 2010	Wilko Wilkening	*Siemens Medical Solutions, Mountain View, CA*
2008 - 2010	Yoonkee Kim	*U.S. Army Communications-Electronics RD&E Center, Ft. Monmouth, NJ, USA*
2008 - 2010	David Cann	*Oregon State University, Corvallis, OR, USA*
2007 - 2009	Roman Maev	*Windsor Institute for Diagnostic Research, Canada*
2007 - 2009	Dragan Damjanovic	*Swiss Federal Institute of Technology, Lausanne*
2007 - 2009	Mike Driscoll	*Northrup Grumman Corp., Baltimore, MD*
2007 - 2009	Ken-ya Hashimoto	*Chiba University, Japan*
2006 - 2008	Manfred Weihnacht	*IFW Dresden (retired), Dresden, Germany*

2006 - 2008	**Sorah Rhee**	*Boston Scientific, Fremont, CA*
2006 - 2008	**Amit Lal**	*Cornell University/DARPA, Arlington, VA*
2006 - 2008	**Tadashi Takenaka**	*Tokyo University of Science, Japan*

Newly Elected AdCom Members

Newly Elected AdCom Members:

The following 4 people have been elected as members of the Administrative Committee (AdCom) of the IEEE Ultrasonics, Ferroelectrics, and Frequency Control society (UFFC-S) for the term from January 1, 2009 to December 31, 2011:

Ultrasonics:

Jian-yu Lu
Department of Bioengineering
The University of Toledo
Toledo, Ohio 43606, USA
Email:
jilu@eng.utoledo.edu

Frequency Control:

Gregory L. Weaver
Space Department
Applied Physics Laboratory
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Ferroelectrics:

Glen Fox
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Ramtron International Corporation
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Regions 8-10 Representative:

Andrew J. Bell
Institute for Materials Research
University of Leeds
United Kingdom, LS2 9JT
Email:
A.J.Bell@leeds.ac.uk

UFFC-S Standing Committee Chairs and Vice Chairs

Committee Chairs and Vice Chairs:

Chair	Name	Affiliation
Ultrasonics	**Jacqueline H. Hines**	*Applied Sensor R&D Corp., Arnold, MD*
Ultrasonics Vice-Chair*	**Mauricio Pereira da**	*University of Maine, Orono, ME*

	Cunha	
Ferroelectrics	**Thomas R. Shrout**	*The Pennsylvania State University, PA*
Ferroelectrics Vice-Chair*	**Bruce A. Tuttle**	*Sandia National Laboratories, NM*
Frequency Control	**Samuel Stein**	*Symmetricom, Boulder, CO*
Publications	**Donald Yuhas**	*Industrial Measurement Systems Inc. IL*
Awards	**Helmut Ermert**	*Ruhr-Universität Bochum, Germany*
Awards Vice-Chair*	**Bernhard R.Tittmann**	*The Pennsylvania State University, PA*
Fellows*	**Fred S. Hickernell**	*Motorola (retired), Phoenix, AZ*
Finance	**Herman van de Vaart**	*Honeywell (Retired), Plymouth, MA*
Finance Vice-Chair*	**Jan Brown**	*JB Consulting, West Whatley, MA*
Membership Services	**Rajesh K. Panda**	*Philips Medical Systems, Andover, MA*
Chapters Vice-Chair*	**Elizabeth H. Schenk**	*STERIS Corporation, Mentor, OH*
Nominations	**Peter Smith**	*McMaster University*
Nominations Vice-Chair*	**Ray Filler**	*US Army CERDEC, Fort Monmouth, NJ*
Newsletter Editor*	**Jan Brown**	*JB Consulting, West Whatley, MA*
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Standards	**Don Malocha**	*University of Central Florida, Orlando, FL*
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The 2008 IEEE International Ultrasonics Symposium has a discount conference registration fee for IEEE members. If you are not an IEEE member and wish to receive a member discount when registering on-site, you should join IEEE through the IEEE booth near the registration desks. As a bonus, we will be able to provide you a free UFFC membership for one year (notice that the UFFC membership can only be offered to IEEE members and it normally requires a small amount of fee on top of the IEEE membership fee). The UFFC membership will allows you to have an on-line access to the IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (TUFFC) and to receive all UFFC Newsletters for one year. Special IEEE/UFFC-S forms should be filled out in the IEEE booth. Students are not eligible for this offer.

Free UFFC-S Membership for Some IEEE Members:

If you are already an IEEE member in good standing but would like to join the UFFC society the first time when registering the conference during the on-site registration, you will also be eligible to receive a one-year free UFFC membership by filling out the IEEE/UFFC-S forms in the IEEE booth.

UFFC CD Archive

Ordering UFFC CD Archive:

If you are an IEEE member and would like to order an IEEE UFFC digital archive CD set or its updates, please click the "Order CD Archive" link at the conference website at: http://ewh.ieee.org/conf/ius_2008.

Conference Management / Acknowledgments

The 2008 IEEE International Ultrasonics Symposium (IUS) acknowledges the support from the following organizations:

Conference Management in China:

China International Conference Center for Science and Technology (CICCST – http://www.ciccst.org.cn/) has been contracted by the 2008 IEEE IUS to perform various local arrangements such as on-site registration, negotiations of venue, audio/visual, logistics, hotels, visa, exhibits, local tours, post-conference China tours, and arrangements for poster boards, meals, book printing, and entertainments, etc. CICCST is a division under

the China Association of Science and Technology (CAST – http://english.cast.org.cn/).

Other Companies:

Mira Digital Publishing, St. Louis, Missouri, USA. – For technical programs (abstract submission, review, conference program, meeting planner, the 2nd Technical Program Committee (TPC) meeting support, and conference books) and the production of the context-sensitive multimedia DVD conference proceedings – http://www.miracd.com/.

YesEvents, Baltimore, Maryland, USA. – For online conference registration with real-time reporting and administration system that also supports the on-site registration – http://www.yesevents.com/.

Doubletree Hotel Chicago O'Hare Airport-Rosemont, USA. – For 2nd TPC meeting of the 2008 IEEE IUS in Chicago, Illinois, USA. – http://doubletree1.hilton.com/en_US/dt/index.do

Industrial Measurement System, Inc., Aurora, Illinois, USA, headed by Dr. Don Yuhas, Vice President for Publication of the UFFC Society. – For sending blast emails for publicity such as announcing deadlines of the conference – http://www.imsysinc.com/.

Cooperation:

The Acoustical Society of China (http://www.i-ince.org/membership/china.htm), and the ***Institute of Acoustics*** (http://www.ioa.ac.cn/english/default.asp), Chinese Academy of Sciences.

Future Ultrasonics Symposia

2009 IEEE International Ultrasonics Symposium:

Location: Rome, Italy.
General Chair: Massimo Pappalardo, *Università degli Studi de Roma Tre, Italia.*

2010 IEEE International Ultrasonics Symposium:

Location: San Diego, California, USA.
General Chair: Bob Potter, *Vectron International - Hudson, NH*

Technical Sessions

Technical Program:

The technical program is arranged as follows:

- Oral Sessions, Monday, November 3, 2008
- Poster Sessions, Monday, November 3, 2008
- Oral Sessions, Tuesday, November 4, 2008
- Poster Sessions, Tuesday, November 4, 2008
- Oral Sessions, Wednesday, November 5, 2008
- Poster Sessions, Wednesday, November 5, 2008

Author Index:

An author index will follow the technical program.

10:30 am – 12:00 pm — Oral --- Monday, November 3, 2008

	Session 1A. Blood Flow Measurements	Session 2A. Tissue Characterization	Session 3A. Imaging Systems and Methods	Session 4A. Transducer Materials Characterization	Session 5A. Material Properties I	Session 6A. Thin Film & Device Characterization
	Chair: **Jorgen Arendt Jensen** *Technical University of Denmark, Denmark*	*Chair:* **Shin-ichiro Umemura** *Tohoku University, Sendai, Japan*	*Chair:* **Jeff Ketterling** *Riverside Research Institute, NY, USA*	*Chair:* **Yongrae Roh** *Kyungpook National University, South Korea*	*Chair:* **Jan Brown** *JB Consulting, MA, USA*	*Chair:* **Jidong Dai** *RF Monolithics, USA*
	Hall 3	**Room 201A/B/C**	**Hall 5A**	**Hall 5B**	**Hall 5C**	**Room 307**
10:30 am	**1A-1 Ultrasound particle velocimetry: an emerging technique in cardiology** **Hairong Zheng**[1], Robin Shandas[2]; [1]*Shenzhen institute of advanced technology,Chinese Academy of Sciences, shenzhen, guangdong, China,* [2]*University of Colorado at Boulder, Boulder, CO, USA*	**2A-1 Signed Echo Imaging of Carotid Arteries** **Shin-ichiro Umemura**[1], Takashi Azuma[2]; [1]*Tohoku University, Biomedical Engineering, Sendai, Miyagi, Japan,* [2]*Hitachi Central Reserach Laboratory, Kokubunji, Tokyo, Japan.*	**3A-1 3-D Laparoscopic Imaging** Michael Zipparo[1], **Clyde Oakley**[1], Rich Denny[1], Said Azim[1], Michael Berman[2], V Balannik[2], A Zilberman[2], R Nechushtai[3], S Soferman[3], D Kopelman[4]; [1]*W. L. Gore and Associates, Inc., CO, USA,* [2]*Biomedicom, Israel,* [3]*The Hebrew University, Life Science Institute, Israel,* [4]*emek Medical Center, Department of Surgery B, Afula, Israel.*	**4A-1 A High Power Adapter for the HP4194A Impedance Analyzer** **Daniel Stutts**; *Missouri University of Science and Technology, Mechanical Engineering, Rolla, MO, USA.*	**5A-1 Ultrasonic Determination of Elastic Stiffness Tensor Components of Porous Materials: Sample Geometry, Inhomogeneity, and Wavelength Dependencies** **Christoph Kohlhauser**, Christian Hellmich, Josef Eberhardsteiner; *Vienna University of Technology, Vienna, Austria.*	**6A-1 Analysis of Resonant SAW – Plate BAW Interaction in Periodical Couplers** **Ventsislav Yantchev**[1], Victor Plessky[2], Ilia Katardjiev[1]; [1]*Uppsala University, Solid State Electronics, Uppsala, Sweden,* [2]*GVR Trade SA, Bevaix, Switzerland.*
10:45 am		**2A-2 Viscoelasticity of lung tissue with surface wave method** **Xiaoming Zhang**, Randall Kinnick, James Greenleaf; *Mayo Clinic, Physiology and Biomedical Engineering, Rochester, MN, USA.*	**3A-2 An Inertial-Optical Tracking System for Portable, Quantitative, 3D Ultrasound** **Abraham Goldsmith**[1], Dr. Peder C. Pedersen[1], Dr. Thomas L. Szabo[2]; [1]*Worcester Polytechnic Institute, Dept. of Electrical and Computer Engineering, Worcester, MA, USA,* [2]*Boston University, Department of Biomedical Engineering, Boston, MA, USA.*	**4A-2 Fundamental Performance Characterisation of High Frequency Piezocomposites made with Net-shape Viscous Polymer Processing for Medical Ultrasound Transducers** D. MacLennan[1], C. Demore[2], **G. Corner**[3], T. Button[4], J. Elgoyhen[4], H. Hughes[4], C. Meggs[4], S. Cochran[2]; [1]*Univ. of Strathclyde, United Kingdom,* [2]*Univ. of Dundee, United Kingdom,* [3]*NHS Tayside, Ninewells Hospital, United Kingdom,* [4]*Applied Functional Materials Ltd, United Kingdom.*	**5A-2 High Frequency Propagation Measurements in Microstructured Solids** **Andrew Dawson**[1], Paul Harris[2], Roger Young[2], Gideon Gouws[1]; [1]*Victoria University of Wellington, New Zealand,* [2]*Industrial Research Limited, New Zealand.*	**6A-2 Pure-shear mode BAW resonator consisting of (11-20) textured AlN films** **Takahiko Yanagitani**[1], Masato Kiuchi[2]; [1]*Nagoya Institute of Technology, Department of Applied Physics, Nagoya, Japan,* [2]*National Institute of Advanced Industrial Science and Technology, Osaka, Japan.*

11:00 am	**1A-2 A Bi-directional, Real-time Blood Flowmeter using an Implantable CMUT Array** **Mengli Wang**[1], J. Chen[1], X. Cheng[1], T. Zhang[2], X. Liu[2]; *[1]Univ. of new mexico, Elec. Eng., USA, [2]Univ. of new mexico, Dept. of Neurology, USA, [3]The Eastman Kodak Company, USA.*	**2A-3 Texture analysis of ultrasound liver images with contrast agent to characterize the fibrosis stage** **Olivier Basset**[1], F. Duboeuf[1], B. Delhay[1], E. Brusseau[1], C. Cachard[1], J.-P. Tasu[2]; *[1]Universite de Lyon, France, [2]CHU Poitiers, France.*	**3A-3 A Novel Flexible, Conformable Ultrasonic Transducer System** **R. Singh**[1], S. Natarjan[2], D. Bennet[2], M. Lee[2], P. Tewari[2], W. Grundfest[3], H. Lee[1], E. Brown[1], M. Culjat[2]; *[1]Univ. of California, Santa Barbara, USA, [2]Univ. of California, Los Angeles, CASIT, USA, [3]University of California, Los Angeles, Bioeng., USA.*	**4A-3 Characterisation of an Epoxy Composite Filler Suitable for Microfabrication Processes** **A. L. Bernassau**, D. Hutson, C.E.M. Démoré, S. Cochran; *Institute of Medical Science and Technology, United Kingdom.*	**5A-3 Interfacial Waves and Stability at the Frictional Sliding Interface between Two Solids** **Yue-Sheng Wang**; *Beijing jiaotong University, Institute of Engineering Mechanics, Beijing, China.*	**6A-3 Study of Frequency Dependent Lateral Leakage in RF BAW Device by Laser Probe System** **N. Wu**, K. Kashiwa, K.-y. Hashimoto, T. Omori, M. yamaguchi; *Chiba Univ., Graduate School of Engineering, Chiba, Chiba, Japan.*
11:15 am	**1A-3 Duplex scanning using sparse data sequences** **Sara Klingenberg Mollenbach**, Jorgen Arendt Jensen; *Technical University of Denmark, Dept. of Electrical Engineering, Lyngby, Denmark.*	**2A-4 Computer aided detection of prostate cancer based on GDA and predictive deconvolution** Simona Maggio[1], **Luca De Marchi[1]**, Martino Alessandrini[2], Nicolo Speciale[1]; *[1]University of Bologna, DEIS, Bologna, Italy, [2]University of Bologna, ARCES, Italy.*	**3A-4 Magnitude, Origins, and Reduction of Abdominal Ultrasonic Clutter** **M. Lediju**[1], M. Pihl[1], S. Hsu[1], J. Dahl[1], C. Gallippi[2], G. Trahey[1]; *[1]Duke University, NC, USA, [2]Univ. of North Carolina, NC, USA.*	**4A-4 Method for Curvature Measurements with Ultrasound** **Elfgard Kuehnicke**[1], Michael Lenz[1], Hans-Georg Trier[2], Jörg Sorber[3], Gerald Gerlach[1]; *[1]TU Dresden, Germany, [2]TIMUG e. V. Bonn, Germany.*		**6A-4 Improvement of liquid-phase SH-SAW sensor device on 36°Y-X LiTaO3 substrate** **Takashi Kogai**[1], Hiromi Yatsuda[1], Showko Shiokawa[2]; *[1]Japan Radio Co., Ltd., Japan, [2]SAW&SPR-Tech Co.,Ltd., Japan.*
11:30 am	**1A-4 Systematic Validation of the Echo Particle Image Velocimetry Technique using a Patient Specific Carotid Bifurcation Model** **F. Zhang**[1], C. Lanning[2], L. Mazzaro[1], B. Rech[1], J. Chen[1], S. James Chen[3], R. Shandas[1,2]; *[1]Univ. of Colorado at Boulder, USA, [2]The Children's Hosp., USA, [3]Univ. of Colorado Health Sci. Cen., USA.*	**2A-5 Improving the quality of QUS imaging using full angular spatial compounding** **Roberto Lavarello**, Michael Oelze; *University of Illinois at Urbana-Champaign, Electrical and Computer Engineering, USA.*	**3A-5 Sources of image degradation in fundamental and harmonic ultrasound imaging Sources of image degradation in fundamental and harmonic ultrasound imaging** **G. Pinton**, G. Trahey; *Duke Univ., Biomed. Eng., Durham, NC, USA.*	**4A-5 Hybrid Ultrasonic Characterization Method for the Full Matrix Electromechanical Coefficients of Ferroelectric Relaxor-based Single Domain 0.93Pb(Zn1/3Nb2/3)O3 ¨C0.07PbTiO3 Single Crystal** **R. Zhang**, Z. Wang, W. Cao; *Harbin Inst. of Tech., China.*	**5A-4 Applications of sonic waves in the estimation of petrophysical, geophysical and geomechanical properties of subsurface rocks** Bikash Sinha[1], **Vivian Pistre[2]**; *[1]Schlumberger-Doll Research, Mathematics and Modeling, Cambridge, MA, USA, [2]Schlumberger Beijing Geoscience Centre, Well Placement and Safety, Beijing, China*	**6A-5 Nanoparticle patterning on 128-YX-LN substrates: the effects of surface acceleration and boundary layer streaming** **Ming Tan**, James Friend, Leslie Yeo; *Monash University, Machanical Engineering, Clayton, Victoria, Australia.*
11:45 am	**1A-5 Monitoring X-ray Contrast Agent Injections with Doppler Ultrasound** **L. Hoff**[4], K. Brabrand[2], N. Berard-Andersen[3], G. Olsen[2], S. Medhus[4]; *[1]Vestfold Univ. Col., Norway, [2]Rikshospitalet Univ. Hosp., Norway, [3]Neorad AS, Norway, [4]ITec Consult. AS, Norway.*	**2A-6 Using resolution enhancement compression to reduce variance of scatterer size estimates from ultrasonic backscattered signals** **J. R. Sanchez**, D. Pocci, M. L. Oelze; *Univ. of Illinois at Urbana-Champaign, Urbana, Illinois, USA.*	**3A-6 Ultrasound Breast Imaging using Full Angle Spatial Compounding: In-vivo results** **C. Hansen**[1], M. Hollenhorst[2], N. Hüttebräuker[1], W. Wilkening[3], L. Heuser[2], G. Schulte-Altedorneburg[2], H. Ermert[1]; *[1]Ruhr-Univ. Bochum, Germany, [2]Ruhr-Univ. Bochum, Germany, [3]Ruhr Center of Excellence for Med. Eng. (KMR), Germany.*	**4A-6 PZT piezoelectric thick film with enhanced electrical properties for high frequency ultrasonic transducer applications** B. Zhu, D. Wu, **Q. Zhou,** K. K. Shung; *NIH Transducer Resource Center, Univ. of Southern California, USA.*		**6A-6 Wafer-Level Packaged SAW Filters with Resistance to Transfer Molding** **Toru Fukano**, Yoshihiro Okubo, Junya Nishii, Ikuo Obara; *Kyocera Corporation, R&D Center,Keihanna, Kyoto, Japan.*

1:30 pm – 3:00 pm — Oral --- Monday, November 3, 2008

	Session 1B. High-Frequency and Small Animal Imaging	Session 2B. Bone I	Session 3B. Ultrasonic Motors - Technology Advances	Session 4B. Single Crystals I	Session 5B. NDE Signal Processing	Session 6B. Advances in Materials & Propagation
	Chair: **Yoshifumi Saijo** *Tohoku University, Sendai, Japan*	*Chair:* **Keith Wear** *US Food and Drug Administration, USA*	*Chair:* **Ji Wang** *Ningbo University, Ningbo, China*	*Chair:* **Sandy Cochran** *Univ. of Dundee, UK*	*Chair:* **Ramazan Demirli** *Canfield Scientific, USA*	*Chair:* **Jan H. Kuypers** *University of California Berkeley, CA, USA*
	Hall 3	**Room 201A/B/C**	**Hall 5A**	**Hall 5B**	**Hall 5C**	**Room 307**
1:30 pm	***1B-1*** **Vital Observation and Featuring Techniques of Functional Cell-Surface Proteins Using Acoustic Impedance Microscope** **S. Yoshida**[1], S. Masaki[1], S. Iwasa[1], K. Kobayashi[2], N. Hozumi[3]; *[1]Toyohashi Univ. of Tech., Mat. Sci., Japan, [2]Honda Elect. Co. Ltd., Japan, [3]Aichi Inst. of Tech., Toyota, Japan.*	***2B-1*** **Frequency dependence of backscatter from thin, oblique, finite-length cylinders measured with a focused transducer – with applications in cancellous bone** **K. Wear**[1], G. Harris[2]; *[1]USA Food and Drug Administration, Center for Devices and Radiological Health, USA, [2]Food and Drug Administration, Center for Devices and Radiological Health, USA.*	***3B-1*** **Configuration of a screw-shape ultrasonic motor** **Atsuyuki Suzuki**[1], Yusuke Nakamura[1], Tetsugi Ueoka[2], Jiromaru Tsujino[2]; *[1]Tokuyama college of technology, Japan, [2]Kanagawa university, Japan.*	***4B-1*** **PMN-PZT Single Crystals and Composites for Transducer Applications** Sung-Min Lee, Dong-Ho Kim, **Ho-Yong Lee**; *Ceracomp Co., Ltd., Korea, Republic of*	***5B-1*** **Ultrasonic Signal Compression Using Optimal Wavelet Tree Decompositions and Adaptive Thresholding** **Erdal Oruklu**, Namitha Jayakumar, Jafar Sanie; *Illinois Institute of Technology, Electrical and Computer Engineering, Chicago, IL, USA.*	***6B-1*** **Fabrication of SHF range SAW devices on AlN/Diamond-substrate** **Tatsuya Omori**, Atsushi Kobayashi, Yuya Takagi, Ken-ya Hashimoto, Masatsune Yamaguchi; *Chiba University, Graduate School of Engineering, Chiba, Japan.*
1:45 pm	***1B-2*** **ECG-gated imaging of a mouse heart using a 40-MHz annular array** **Jeffrey A. Ketterling**[1], Orlando Aristizabal[2], Daniel H. Turnbull[2]; *[1]Riverside Research Institute, New York, NY, USA, [2]New York University School of Medicine, Skirball Institute of Biomolecular Medicine, USA.*	***2B-2*** **Experimental Assessment of the Relative Impact of Multiple Wave Interference and Phase-sensitive Detection on the Apparent Negative Dispersion in Cancellous Bone** Adam Bauer, Christian Anderson, Benjamin Johnson, Mark Holland, **James Miller**; *Washington University, Physics, St. Louis, Missouri, USA.*	***3B-2*** **Design and Control of Spherical Two Degree-of-Freedom Traveling Wave type Ultrasonic Motor** **Fu Ping**[1], Shen Runjie[2], Shuai Guanju[3], Guo Jifeng[2]; *[1]Minjiang Univercity, China, [2]Zhejiang university, China, [3]Zhejiang Wanma Group Electron Co. Ltd, China.*		***5B-2*** **Sparse deconvolution of ultrasonic NDE traces - a preliminary study** **Guangming Zhang**[1], David Harvey[1], Derek Braden[2]; *[1]Liverpool John Moores University, General Engineering Research Institute, Liverpool, Merseyside, United Kingdom, [2]Delphi Electronics & Safety, Liverpool, United Kingdom.*	***6B-2*** **Large Q.f Product for HBAR using smart cut ™ reported LiNbO3 on LiNbO3 substrate** **M. Pijolat**[1], J. S. Moulet[2], A. Reinhardt[1], E. Defaÿ[1], C. Deguet[1], D. Gachon[3], S. Ballandras[3], M. Aïd[1], B. Ghyselen[2]; *[1]CEA-LETI, Grenoble, France, [2]Silicon-on-Insulator Tech. (SOITEC), France, [3]Femto ST, UMR CNRS-UFC-ENSMM-UTBM France.*

2:00 pm	**1B-3 Micro-ultrasound Takes Off (In the Biological Sciences)** **F. Stuart Foster**; *Sunnybrook Health Sciences Centre and University of Toronto, Imaging Research, Toronto, Ontario, Canada.*	**2B-3 Comparison between microelastic bone properties assessed by scanning acoustic microscopy and nanoindentation** F. Rupin[1], A. Saied[1], D. Dalmas[2], F. Peyrin[3], K. Raum[4], E. Barthel[2], **P. Laugier[1]**; *[1]Univ. P. et M. Curie, France, [2]St.-Gobain Recherche-CNRS, France, [3]INSERM-CNRS-ESRF, France, [4]M. Luther Univ. of Halle-Wittenberg, Germany.*	**3B-3 The measurement on vibration friction coefficient of ultrasonic motor*** Jin Yi Liew, **Yu Chen,** TieYing Zhou; *Tsinghua University, Department of Physics, Beijing, China.*	**4B-2 Micromachined High-frequency PMN-PT Single Crystal Ultrasound Transducer for Medical Imaging** **Jiyan Dai**, Jue Peng, Sient Ting Lau, Heng L; *The Hong Kong Polytechnic University, China.*	**5B-3 Special probe waveforms for flaw detection at "hot spots"** **David Greve**, Irving Oppenheim; *Carnegie Mellon University, Electrical and Computer Engineering, Pittsburgh, PA, USA.*	**6B-3 High Temperature Stability of Langasite Surface Acoustic Wave Devices** **M. P. da Cunha[1]**, R. Lad[2], T. Moonlight[2], G. Bernhardt[2], D. Frankel[2], B. Sturtevant[2]; *[1]Univ. of Maine, Electrical and Computer Engineering, USA, [2]University of Maine, USA.*
2:15 pm		**2B-4 Numerical study of the dependence of the ultrasonic parameters on apparent modulus of human cancellous bone assessed by micro finite element analysis** **G. Haiat[1]**, F. Padilla[2], M. Svrcekova[3], Y. Chevalier[3], D. Pahr[3], P. Laugier[2], P. Zysset[3]; *[1]CNRS, France, [2]CNRS, Laboratoire d'Imagerie Paramétrique, France, [3]TU Wien, Austria.*	**3B-4 Nonlinear flexural vibrations of piezoelectric ceramic tubes in Besocke-style scanners** **Hui Zhang**, Shu-yi Zhang; *Institute of Acoustics, Nanjing University, Nanjing, Jiangsu, China.*	**4B-3 Micromachined PMN-PT Single Crystal Composite Transducers -- 15-75 MHz PC-MUT** **Xiaoning Jiang[1]**, Kevin Snook[1], An Cheng[2], Wesley Hackenberger[1], Xuecang Geng[3]; *[1]TRS Technologies, Inc., USA, [2]Penn State University, USA, [3]Blatek, Inc., USA.*	**5B-4 S-Transform Applied To Ultrasonic Nondestructive Testing** **Muhammad A. Malik[1]**, Jafar Saniie[2]; *[1]University of Hail, Electrical Engineering, Hail, Saudi Arabia, [2]Illinois Institute of Technology, USA.*	**6B-4 SAW-Relevant Material Properties of Langasite in the Temperature Range from 25 to 750° C: New Experimental Results** **I. Shrena[1]**, J. Bardong[2], M. Schmitt[3], D. Eisele[1], E. Mayer[1], L. M. Reindl[1]; *[1]Univ. of Freiburg - IMTEK, Germany, [2]CTR AG, SAW Sensor Systems, Austria, [3]Univ. of Applied Sciences Coburg, Germany.*
2:30 pm	**1B-4 40 MHz Annular-Array In Utero Imaging of Mouse Embryos with Chirp Coded Excitation** O. Aristizábal[1], **J. Mamou[2],** D. H. Turnbull[1], J. A. Ketterling[2]; *[1]NYU Sch. of Med., NY, USA, [2]Riverside Research Institute, NY, USA*	**2B-5 Microstructural simulation of ultrasonic wave propagation through vertebral trabecular bone samples** **L. Goossens[1]**, J. Vanderoost[1], S. Jaecques[2], S. Boonen[3], J. D'hooge[4], G. H. van Lenthe[1], W. Lauriks[1], G. Van der Perre[1]; *[1]K.U.Leuven, Belgium, [2]K.U.Leuven, Belgium, [3]K.U.Leuven, Belgium, [4]K.U.Leuven, Belgium, [5]K.U.Leuven, Belgium.*	**3B-5 A High Power Linear Ultrasonic Motor Using Push-Pull Type Longitudinal and Bending Hybrid Langevin Transducer with Single Foot** **Shi Shengjun**, Chen Weishan, Liu Junkao, Xie Tao, Liu Yingxiang; *Harbin Institute of Technology, China.*	**4B-4 Vibration mode and relevant ultrasonic applications of ferroelectric single crystals Pb(Mg1/3Nb2/3)O3-PbTiO3** Dan Zhou, **Haosu Luo**; *Shanghai Institute of Ceramics, CAS, China.*	**5B-5 Ultrasonic Guided-Waves Characterization with Warped Frequency Transforms** **Luca De Marchi[1]**, Alessandro Marzani[2], Salvatore Caporale[3], Nicolo Speciale[3]; *[1]University of Bologna, DEIS, Bologna, Italy, [2]University of Bologna, DISTART, Italy, [3]University of Bologna,*	**6B-5 Thin Films of PZT- based Ternary Perovskite Compounds for MEMS** **Kiyotaka Wasa[1]**, Isaku Kanno[1], Hidetoshi Kotera[1], Norihiro Yamauchi[2], Tomoaki Matsuhima[2]; *[1]Kyoto University, Japan, [2]Panasonic, Japan.*
2:45 pm	**1B-5 3D Mouse Imaging with High-Frequency Ultrasound (20 MHz) Using Limited-Angle Spatial Compounding** **J. Opretzka**, M. Vogt, H. Ermert; *Ruhr-Univ. Bochum, Bochum, Germany*	**2B-6 Propagation of ultrasonic longitudinal wave in the cancellous bone covered by the subchondral bone of bovine femur** **T. Koizumi[1]**, K. Yamamoto[2], Y. Nagatani[3], H. Soumiya[1], T. Saeki[1], Y. Yao[1], M. Matsukawa[1]; *[1]Doshisha Univ., Kyotanabe, Japan, [2]Hamamatsu Univ. Sch. of Med., Japan, [3]Kobe City Col. of Tech., Japan.*	**3B-6 A New Type of Tubular Traveling-Wave Ultrasonic Motor** Rafael Pippi[1], **Cesar Rodrigues[2],** Rafael Tambara[2], Marcelo Dal Alba[2]; *[1]CEFET/SC, DDE, Chapecó, SC, Brazil, [2]UFSM, PPGEE, Santa Maria, RS, Brazil.*		**5B-6 Estimation of Chemical Reaction Kinetics Using Ultrasound** **J. E. Carlson[1]**, V.-M. Taavitsainen[2]; *[1]Lulea Univ. of Technology, Sweden, [2]EVTEK University of Applied Sciences, Espoo, Finland.*	**6B-6 Fabrication and Characterization of PMnN-PZT Films with High Piezoelectricity** **T. Zhang[1]**, K. Wasa[2], S.-y. Zhang[1], Z.-j. Chen[1], F.-m. Zhou[1], Z.-n. Zhang[1], Y.-t. Yang[1]; *[1]Nanjing University, China, [2]Kyoto University, Japan.*

4:30 pm – 6:00 pm — Oral --- Monday, November 3, 2008

	Session 1C. Shear Wave and Shear Strain Imaging	Session 2C. Bone II	Session 3C. Phononic Crystals I - Bandgap & Focusing	Session 4C. Single Crystal II	Session 5C. Bulk Acoustic Wave Sensors	Session 6C. SAW Devices
	Chair: **James Greenleaf** *Mayo Clinic College of Medicine, MN, USA*	*Chair:* **Pascal Laugier** *Université Paris VI, Paris, France*	*Chair:* **Yook-Kong Yong** *Rutgers University, NJ, USA*	*Chair:* **Clyde Oakley** *W. L. Gore, USA*	*Chair:* **John Vetelino** *University of Maine, ME, USA*	*Chair:* **Victor Plessky** *GVR Trade SA, Switzerland*
	Hall 3	**Room 201A/B/C**	**Hall 5A**	**Hall 5B**	**Hall 5C**	**Room 307**
4:30 pm	***1C-1*** **Optimal design of ultrasonic beam profiles for acoustic radiation force based elastography** **Jeremy Bercoff**[1], Mickael Tanter[2], Mathias Fink[2], Jacques Souquet[1]; *[1]Supersonic Imagine, Aix en Provence, France, [2]Laboratoire Ondes et Acoustique, Paris, France.*	***2C-1*** **How Ultrasound Bidirectional Axial Transmission Reflects Geometry of Long Bones?** **Thiên-Ly Pham**, Maryline Talmant, Pascal Laugier; *Université Pierre et Marie Curie Paris 6, CNRS, Laboratoire d'Imagerie Paramétrique, Paris, France.*	***3C-1*** **Study of transmission property of the one-dimensional phononic crystal thin plate by the Eigen-Mode-Matching theory** Zhilin Hou, **Badreddine Assouar**; *LPMIA, Nancy University - CNRS, Vandoeuvre les Nancy cedex, France.*	***4C-1*** **Piezoelectric Thin and Thick Films for Transducer Applications** **Wei Ren**[1], Peng Lin[1], Zheng Wang[1], Xiaoqing Wu[1], Peng Shi[1], Xi Yao[1], Qifa Zhou[2], Dawei Wu[2], Benpeng Zhu[2], K. Kirk Shung[2]; *[1]Electronic Materials Research Laboratory, Xi&[prime]an Jiaotong University, Xi&[prime]an 710049, China, [2]University of Southern California, Los Angeles, CA 90089, NIH Transducer Resource Center and Department of Biomedical Engineering, USA*	***5C-1*** **Ultra high frequency acoustic wave detection of HIV antibody** **Michael Thompson**[1], Scott Ballantyne[2]; *[1]University of Toronto, Chemistry, Toronto, Ontario, Canada, [2]Maple Biosciences, Toronto, Ontario, Canada*	***6C-1*** **Ring Waveguide Resonator on SAW – Quality Factor vs Electrode Structure Properties** **Sergey Biryukov**[1], Hagen Schmidt[1], Manfred Weihnacht[2]; *[1]IFW Dresden, Dresden, Germany, [2]INNOXACS, Dippoldiswalde, Germany.*
4:45 pm	***1C-2*** **Rapid Shear Wave Measurement for SDUV with Broadband Excitation Pulses and Non-Uniform Sampling** **Y. Zheng**[1], A. Yao[1], S. Chen[2], J. Greenleaf[2]; *[1]St. Cloud State Univ., Elect. and Comp. Eng., St. Cloud, MN, USA, [2]Mayo Clinic College of Medicine, Physiology and Biomedical Engineering, Rochester, MN, USA.*	***2C-2*** **Analysis of Reflection and Transmission Coefficients of Ultrasonic Guided Wave in Fracture Long Bones by Hybrid Boundary Element Method** **Kailiang Xu**, Dean Ta, Weiqi Wang; *Fudan University, Department of Electronic Engineering, Shanghai, China.*	***3C-2*** **Study of complete band gaps in two-dimensional square and triangular steel-water phononic crystals** Cunfu He, **Huanyu Zhao,** Bin Wu, Ruiju Wei; *Beijing University of Technology, China.*			***6C-2*** **SAW Band Rejection Filters for Mobile Digital Television** **Thomas Bauer**[1], Matthias Jungkunz[2], Karl Wagner[1]; *[1]EPCOS AG, SAW RD BT DT, Munich, Germany, [2]EPCOS AG, SAW COM WT AE PD, Munich, Germany.*

5:00 pm	**1C-3 Shear Wave Induced Resonance: a new excitation mode for dynamic elastography imaging** **A. H. Henni**, C. Schmitt, G. Cloutier; *University of Montreal Hospital, Laboratory of Biorheology and Medical Ultrasonics, Montreal, Quebec, Canada.*	**2C-3 A theoretical and experimental study of bone's microstructural effect on the dispersion of ultrasonic guided waves** **M. Vavva**[1], V. Protopappas[2], L. Gergidis[1], A. Charalambopoulos[1], D. Fotiadis[2], D. Polyzos[3]; *[1]Univ. of ioannina, Greece, [2]Univ. of Ioannina, Greece, [3]Univ. of Patras, Greece.*	**3C-3 Band gap analysis of two-dimensional phononic crystals based on boundary element method** **Feng-lian Li**, Yue-sheng Wang; *Beijing Jiaotong University, Institute of Engineering Mechanics, Beijing, China.*	**4C-2 Elastic, Piezoelectric and Dielectric Properties of PIN-PMN-PT Crystals Grown by Bridgman Method** **J. Luo**[1], S. Zhang[2], T. Shrout[2], W. Hackenberger[1]; *[1]TRS Technologies, Inc, PA, USA, [2]Penn. State Univ., Mat. Res. Inst., University Park, PA, USA.*	**5C-2 The Detection of Chemical and Biological Analytes Using a Monolithic Spiral Coil Acoustic Transduction Sensor** **Donald McCann**, Mitchell Wark, Paul Millard, David Neivandt, John Vetelino; *University of Maine, Orono, ME, USA.*	**6C-3 Low Loss SAW RF ID Tags for Space Sensor Applications** **Nancy Saldanha**, Donald Malocha; *University of Central Florida, Electrical Engineering, Orlando, FL, USA.*
5:15 pm	**1C-4 Simultaneous imaging of artery-wall strain and blood flow realized by high frame rate acquisition of RF echoes** **Hideyuki Hasegawa**, Hiroshi Kanai; *Tohoku University, Japan.*	**2C-4 Anomalous behavior of ultrasonic velocity dispersion in bovine cortical bone** **G. Haiat**[1], M. Sasso[2], S. Naili[2], M. Matsukawa[3]; *[1]CNRS, France, [2]Univ. Paris-Est, France, [3]Doshisha Univ., Laboratory of Ultrasonic Electronics, Kyoto-fu, Japan.*	**3C-4 Band structure of evanescent waves in phononic crystals** **V. Laude**[1], B. Aoubiza[2], Y. Achaoui[1], S. Benchabane[1], A. Khelif[1]; *[1]Institut FEMTO-ST, France, [2]Université de Franche-Comté, France.*	**4C-3 Frequency Dependent Properties of High Permittivity PMNT Piezoelectric for Ultrasonic Transducer Applications** **S. Zhang**[1], H. J. Lee[2], X. Jiang[3], E. Gerber[2], T. Shrout[2]; *[1]Penn. State Univ., PA, USA, [2]Penn. State Univ., USA, [3]TRS Technologies, Inc., USA.*	**5C-3 Monolithic Lateral Field Excited Well Structures in Quartz** **Shane Winters**[1], George Bernhardt[2], David Frankel[2], John Vetelino[2]; *[1]University of Maine, Orono, Maine, USA, [2]University of Maine, USA.*	**6C-4 Two-fingers SPUDT cells** Guenter Martin[1], Sergey Biryukov[1], Bernd Steiner[2], **Bert Wall**[2]; *[1]IFW Dresden, Dresden, Germany, [2]Vectron International, Teltow, Germany.*
5:30 pm	**1C-5 supersonic shear wave elasticity imaging** **Mathias Fink**[1], Mickael Tanter[1], Jeremy Bercoff[2], Jacques Souquet[2]; *[1]Laboratoire Ondes et Acoustique, ESPCI, Paris, France, [2]Supersonic Imagine, Aix en Provence, France.*	**2C-5 A Minute Bone Bending Angle Measurement Method using Echo-Tracking for Assessment of Bone Strength In Vivo** **R. Sakai**[1], K. Miyasaka[1], E. Minagawa[1], T. Ohtsuka[1], A. Harada[1], Y. Yoshikawa[1], J. Matsuyama[2], K. Tobita[2], K. Nakamura[2], I. Ohnishi[2]; *[1]Aloka Co.,Ltd., Japan, [2]Univ. of Tokyo, Japan.*	**3C-5 Negative refraction of transverse waves in an elastic phononic crystal** **A.-C. Hladky**[1], J. Vasseur[1], B. Dubus[1], B. Djafari-Rouhani[1], D. Ekeom[2], B. Morvan[2]; *[1]IEMN, Lille, Nord, France, [2]Microsonics, France, [1]LOMC, Le Havre, France.*	**4C-4 Broadband (10^-2-2x10^0 Hz) dielectric response in hard and soft PZT ceramics** **Li Jin**, Viktor Porokhonskyy, Dragan Damjanovic; *Swiss Federal Institute of Technology - EPFL, Ceramics Laboratory, Lausanne, Switzerland.*	**5C-4 Novel electrode configurations of lateral field Excited acoustic wave devices on (yxl)-58° LiNbO3** **W. Wang**, C. Zhang, Z. Zhang, Y. Liu, G. Feng, G. Jing; *Tsinghua Univ., Department of Precision Instruments and Mechanology, Beijing, China.*	**6C-5 SAW ID-tag for industrial application with large data capacity and/or anticollision capability** **Gudrun Bruckner**, Rene Fachberger, Jochen Bardong; *CTR AG, Villach, St. Magdalen, Austria.*
5:45 pm		**2C-6 Osteoblasts growth following insonations with low intensity pulsed ultrasounds of different frequencies** **Show-Huie Chen**, Chun-Yi Chiu, Shyh-Hau Wang; *Chung Yuan Christian University, Biomedical Engineering, Chung Li, Tao Yuan, Taiwan.*	**3C-6 General analytical scheme for determining the characteristic caustic points in phonon focusing patterns of cubic crystals** **Litian Wang**; *\{O}stfold University College, Mathematics and Physics, Sarpsborg, Norway.*	**4C-5 Improved Properties for Piezoelectric Crystals in the Lead Indium Niobate-Lead Magnesium Niobate-Lead Titanate Ternary System** **J. Tian**[1], P. Han[1], J. Carroll[2], D. Payne[2]; *[1]H. C. Materials Corp., USA, [2]Univ. of Illinois at Urbana-Champaign, USA.*	**5C-5 More Comprehensive Model of Quartz Crystal Microbalance Response to Viscoelastic Loading** **Raimund Bruenig**[1], Manfred Weihnacht[2], Hagen Schmidt[1], Glen Guhr[1]; *[1]IFW-Dresden, Dresden, Germany, [2]InnoXacs, Dippoldiswalde, Germany.*	**6C-6 The OmniSAW device concept** **Abdelkrim Khelif**, Abdelkrim Choujaa, Jean-yves Rauch, Valérie Petrini, Hanane Moubchir, Sarah Benchabane, Vincent Laude; *Femto-st institute, Micro Nano sciences&systems, Besançon, France.*

3:00 pm – 4:30 pm	POSTER - Monday, November 3, 2008			2nd and 3rd Floor
Session: PS. **Student Competition Finalists**	***PS008-08*** **Estimation of Valvular Regurgitation Area by 3D HPRF Doppler** **T. Hergum**[1], T. R. Skaug[1], K. Matre[2], H. Torp[1]; [1]*Norwegian Univ. of Science and Technology, Norway,* [2]*Univ. of Bergen, Institute of Medicine, Bergen, Norway.*	***PS016-16*** **Temperature Compensation of Thin AlN Film Resonators utilizing the Lowest order Symmetric Lamb mode.** **Gunilla Wingqvist**, Lilia Arapan, Ventsislav Yantchev, Ilia Katardjiev; *Uppsala University, Solid State Electronics, Uppsala, Sweden.*		
PS001-01 **Design of Catheter for Combined Intravascular Photoacoustic and Ultrasound Imaging** **Bo Wang**, Andrei Karpiouk, Stanislav Emelianov; *University of Texas at Austin, Biomedical Engineering, Austin, TX, USA.*	***PS009-09*** **Image-Guided Refocusing of Dual-Mode Ultrasound Arrays(DMUAs)** **John Ballard**, Emad Ebbini; *University of Minnesota, USA.*	***PS017-17*** **A Full-Wave Analysis of Surface Acoustic Waves Propagating on a SiO2 Overlay/Metal Grating/Rotated YX-LiNbO3 Substrate Structure** **Y. Wang**, K.-y. Hashimoto, T. Omori, M. Yamaguchi; *Chiba University, Japan.*		
PS002-02 **Intra-Vascular Ultrasound (IVUS) Delivery of DNA Via Microbubble Carriers to an Injured Artery In vivo** **L. C. Phillips**[1], A. L. Klibanov[1], D. K. Bowles[2], B. R. Wamhoff[1], J. A. Hossack[1]; [1]*Univ. of Virginia, USA,* [2]*University of Missouri, Columbia, MO, USA.*	***PS010-10*** **The Detection of Chemical and Biological Analytes Using a Monolithic Spiral Coil Acoustic Transduction Sensor** **Donald McCann**, Mitchell Wark, Paul Millard, David Neivandt, John Vetelino; *University of Maine, Orono, ME, USA.*	***PS018-18*** **Shear mode BAW resonator based on c-axis oriented AlN thin film** **Evgeny Milyutin**, Paul Muralt; *Ecole Polytechnique Federale de Lausanne, Switzerland.*		
PS003-03 **Quantitative Bladder Volume Assessment on the Basis of Nonlinear Wave Propagation** **Egon J.W. Merks**, Nicolaas Bom, Nico de Jong, Antonius F.W. van der Steen; *ErasmusMC, Biomedical Engineering, Rotterdam, Netherlands.*	***PS011-11*** **Improving the Bandwidth of Air Coupled Capacitive Ultrasonic Transducers Using Selective Networks** **Sean Mc Sweeney**[1], WMD Wright[2], [1]*Univ. College Cork, National Univ. of Ireland, Ireland,* [2]*Univ. College Cork, National Univ. of Ireland, Ireland.*	***PS019-19*** **Investigation of charge diffusion in Capacitive Micromachined Ultrasonic Transducers (CMUTs) using optical interferometry** **H. Martinussen**, A. Aksnes, H. E. Engan; *Norwegian University of Science and Technology, Trondheim, Norway.*		

PS004-04 **Microbubble dynamics in microvessels: Observations of microvessel dilation, invagination and rupture**

H. Chen, A. A. Brayman, M. R. Bailey, T. J. Matula; *Center for Industrial and Medical Ultrasound, Applied Physics Laboratory, University of Washington, Seattle, WA, USA.*

PS005-05 **Non-invasive thrombolysis induced by histotripsy pulsed cavitation ultrasound therapy**

A. Maxwell[1], C. Cain[1], H. Gurm[2], J. B. Fowlkes[3], Z. Xu[1]; *[1]Univ. of Michigan, Dept. of Biomed. Eng., USA, [2]Univ. of Michigan, Dept. of Int. Med., USA, [3]Univ. of Michigan, Dept. of Radiology, USA.*

PS006-06 **Reaching the optimal focusing and steering capabilities of transcranial HIFU arrays based on time reversal of acoustically induced cavitation bubble signature.**

J. Gateau[1], L. Marsac[2], M. Pernot[1], J.-F. Aubry[1], M. Tanter[1], M. Fink[1]; *[1]INSERM, CNRS UMR 7587, ESPCI, France, [2]Supersonic Imagine, France.*

PS007-07 **High Frame Rate Adaptive Imaging Using Coherence Factor Weighting and the MVDR Method**

Shun-Li Wang, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*

PS012-12 **Dynamic focusing thorough arbitrary geometric interfaces**

Montserrat Parrilla, **Jose Brizuela,** Jorge Camacho, Alberto Ibañez, Patricia Nevado, Carlos Fritsch; *Instituto de Automática Industrial (CSIC), La Poveda (Arganda), Madrid, Spain.*

PS013-13 **Wireless Drive of a Piezoelectric Plate by Dipole Antenna**

Satyanarayan Bhuyan, Junhui Hu; *Nanyang Technological University, Singapore.*

PS014-14 **Towards thin film complete characterization using picosecond ultrasonics**

Pierre-Adrien Mante, Arnaud Devos, Jean-François Robillard; *IEMN-CNRS, France.*

PS015-15 **Simultaneous observation of induced longitudinal and shear acoustic phonons by Brillouin Scattering**

T. Yoshida[1], M. Matsukawa[1], T. Yanagitani[2]; *[1]Doshisha Univ., Japan, [2]Nagoya Institute of Technology, Japan.*

PS020-20 **High-frequency (>100MHz) Piezoelectric PZT Film Micromachined Ultrasonic Arrays**

D. Wu[1], Q. Zhou[1], C. Liu[2], F. Djuth[2], K. K. Shung[1]; *[1]Univ. of Southern California, NIH Transducer Resource Center and Department of Biomedical Engineering, USA, [2]Geospace Research, Inc, USA.*

PS021-21 **1-D CMUT Imaging Arrays Fabricated Using a Novel Wafer Bonding Process**

Andrew Logan, John Yeow; *University of Waterloo, Systems Design Engineering, Waterloo, Ontario, Canada.*

Session: P1A. Photoacoustic Imaging

Chair: **Xueding Wang**
University of Michigan, MI, USA

P1A023-01 In Vivo Photoacoustic Micro-imaging of Microvascular Changes in Achilles Tendon of Mice

P. Wang[1], J. Luh[2], M.-L. Li[1]; [1]*Department of Electrical Engineering, National Tsing Hua Univ., Hsingchu, Taiwan,* [2]*School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan Univ., Taipei, Taiwan.*

P1A024-02 Experimental Evaluation of a High-Speed Photoacoustic Tomography System

Xueding Wang[1], Larry Mo[2], J. Fowlkes[1], Paul Carson[1]; [1]*University of Michigan, Ann Arbor, Michigan, USA,* [2]*Zonare Medical Systems, Mountain View, CA, USA.*

P1A025-03 A large 2D CMUT array for 3D photoacoustic imaging

Srikant Vaithilingam[1], Te-Jen Ma[1], Cenk Yildiz[1], Kwan-Kyu Park[1], Xuefeng Zhuang[1], Ira Wygant[1], Yukio Furukawa[1], Aya Kamaya[2], Omer Oralkan[1], Mario Kupnik[1], R. Brooke Jeffrey Jr.[2]; Butrus T. Khuri-Yakub[1], [1]*Stanford University, USA,* [2]*Stanford University Medical Center, USA.*

P1B029-02 A Modified Synthetic Aperture Imaging Approach with Axial Motion Compensation

Billy Y. S. Yiu, Ivan K. H. Tsang, Alfred C. H. Yu; *The University of Hong Kong, Medical Engineering Programme, Pokfulam, Hong Kong, China.*

P1B030-03 A New Ultrasonic Synthetic Aperture Tissue Harmonic Imaging System

Moo-Ho Bae[1], Han-Woo Lee[2], Sung Bae Park[1], Ra-Young Yoon[2], Min Hye Jeong[1], Deok Gon Kim[1], Mok-Kun Jeong[3], Yung-Gil Kim[2]; [1]*Hallym Univ., Department of Electronic Engineering, Korea, Republic of,* [2]*Medison Co. LTD., Korea, Republic of,* [3]*Daejin Univ., Korea, Republic of.*

P1B031-04 Optimization of Beams with Nonspherical Extended Depths of Focus for Reconfigurable 2D Arrays

Fong Ming Hooi[1], Kai Thomenius[2], Rayette A. Fisher[2], Paul L. Carson[1]; [1]*University of Michigan, Ann Arbor, MI, USA,* [2]*GE Global Research, Niskayuna, NY, USA.*

P1B032-05 Design of a 64-channel Digital High Frequency Linear Array Ultrasound Imaging Beamformer on a Massively Parallel Processor Array Platform

Chang-Hong Hu, Ping Sun, Fan Zheng, Jonathan M. Cannata, K. Kirk Shung; *University of Southern California, Biomedical Engineering, Los Angeles, CA, USA.*

P1B037-10 Abersim: a Simulation Program for 3D Nonlinear Acoustic Wave Propagation for Arbitrary Pulses and Transducer Geometries

H. Kaupang[1], **M. Frijlink**[1], T. Varslot[2], S.-E. Måsøy[1]; [1]*NTNU Norwegian Univ. of Science and Technology, Norway,* [2]*Australian National Univ., Department of Applied Mathematics, Canberra, Australia.*

P1B038-11 Determination of Temporal Bone Isoplanatic Patch Sizes for Transcranial Phase Aberration Correction

Francois Vignon[1], **William Shi**[1], Jeffry Powers[2]; [1]*Philips Research North America, Briarcliff Manor, NY, USA,* [2]*Philips Healthcare, Bothell, WA, USA.*

Session: P1C. Medical Imaging

Chair: **Olivier Basset**
CREATIS, Université Lyon I, France

P1C039-01 Influence of the transducer geometry on the phase of the second harmonic reduction signal

M. Pasovic[1], **O. Basset**[1], G. Matte[2], A. F.W. van der Steen[2], N. de Jong[2]; C. Cachard[1], [1]*Univ. de Lyon, INSA-LYON, Univ. Lyon 1, CRNS 5220, INSERM U630, CREATIS-LRMN, France,* [2]*ErasmusMC, Netherlands.*

P1C044-06 Comparison of regularization methods for 2D myocardial strain estimation in the mouse

F. Kremer[1], H. F. Choi[1], S. Langeland[2], E. D'Agostino[3], P. Claus[1], J. D'hooge[1]; [1]*Katholieke Univ. Leuven, Belgium,* [2]*GE Vingmed, Norway,* [3]*Katholieke Univ. Leuven, Belgium.*

P1C045-07 Feasibility of non-linear simulation for Field II using an angular spectrum approach

Yigang Du, Jørgen Arendt Jensen; *Technical University of Denmark, Center for Fast Ultrasound Imaging, Lyngby, Denmark.*

P1C046-08 Comparison of the performance of different tools for fast simulation of ultrasound data

H. Gao[1], T. Hergum[2], H. Torp[2], J. D'hooge[1]; [1]*Catholic University of Leuven, Cardiovascular Diseases, Leuven, Belgium,* [2]*Norwegian University of Science and Technology, Circulation and Medical Imaging, Trondheim, Norway.*

P1C047-09 Estimating Frequency Depentdent Attenuation to Improve Gain Distribution in B-mode Imaging

Sten Roar Snare, Hans Torp; *Norwegian Uiversity of Science and Technology (NTNU), Department of Circulation and Medical Imaging, Trondheim, Norway.*

P1C052-14 Compact Ultrasound Scanner with Simultaneous Parallel Channel Data Acquisition Capabilities

Larry Mo[1], Derek DeBusschere[1], Glen McLaughlin[1], Xueding Wang[2], J. Brian Fowlkes[2], Paul Carson[2], Dave Napolitano[1], Wenli Bai[1], Ken Fowkes[1], Andrew Irish[1]; [1]*ZONARE Medical Systems, Inc., USA,* [2]*University of Michigan Health System, USA.*

P1C053-15 A Mobile Medical Device for Point-of-Care Applications

Oh-hyun Kwon, Hak-yeol Sohn, Jeong Cho, Hee-chul Yoon, Sin-hyeok Seo, Wang-young Sohn, Tai-kyong Song, *Electronic Engineering, Sogang University, Seoul, Korea, Republic of.*

P1C054-16 Interactive Ultrasound Training System

Christian Banker[1], Peder Pedersen[1], Thomas Szabo[2]; *Worcester Polytechnic Institute, Electrical and Computer Engineering, Worcester, MA, USA,* [2]*Boston University, Biomedical Engineering, Boston, MA, USA.*

P1C055-17 Phase Corrected Scattering Integral and the acoustic field in biomedical tissue with speed of sound and density variations

R. Thompson[1], W. Padden[2], C. Macaskill[1]; [1]*Univ. of Sydney, Australia,* [2]*Univ. of Sydney, School of Mathematics & Statisics, Sydney, NSW, Australia.*

P1A026-04 Simulation Study of Photoacoustic Coded Excitation using Golay Codes

M. Mienkina[1], A. Eder[1], C.-S. Friedrich[2], N. Gerhardt[3], M. Hofmann[2], G. Schmitz[1]; [1]*Ruhr-University Bochum, Germany,* [2]*Ruhr-University Bochum, Germany,* [3]*photonIQ Technologies GmbH, Germany.*

P1A027-05 Photoacoustic measurement of optical-transport Green functions in turbid media using progressive optical-source-acoustic focus separations

Roger Zemp; *University of Alberta, Electrical & Computer Engineering, Edmonton, Alberta, Canada.*

Session: P1B. Medical Beamforming

Chair: **John Hossack**
University of Virginia, USA

P1B028-01 A New ultrasonic synthetic Aperture Tissue Doppler imaging System

Moo-Ho Bae[1], Han-Woo Lee[2], Sung Bae Park[1], Jeong-Ho Ham[2], Kyoung Bo Lee[1], Mok-Kun Jeong[3], Yung-Gil Kim[2]; [1]*Hallym Univ., Department of Electronic Engineering, Korea, Republic of,* [2]*Medison Co. LTD., Korea, Republic of,* [3]*Daejin Univ., Korea, Republic of.*

P1B033-06 Sigma-Delta Dynamic Receive Beamforming

Donald Liu[1], Daniel Brueske[1], Todd Willsie[1], Daft Chris[2]; [1]*Siemens Medical Solutions, Ultrasound Group, Issaquah, WA, USA,* [2]*Siemens Medical Solutions, Ultrasound Group, Mountain View, CA, USA.*

P1B034-07 A Simple Method That Can Compensate the Refraction of the Array Transducer Lens

M.-H. Bae[1], Han-W. Lee[2], S. B. Park[1], R.-Y. Yoon[2], J.-H. Ham[2], S. H. Chang[1], D. Y. Kim[1], M.-K. Jeong[3], Y.-G. Kim[2]; [1]*Hallym Univ., Department of Electronic Engineering, Korea, Republic of,* [2]*Medison Co. LTD., Korea, Republic of,* [3]*Daejin Univ., Korea, Republic of.*

P1B035-08 Ultrasound Breast Imaging Technique Using Two Opposing Array Transducers

M. K. Jeong[1], S. J. Kwon[2], S. M. Cho[2], M. H. Bae[3], Y. G. Kim[4]; [1]*Daejin University, Electronics, Pocheon, Kyeonggi, Korea, Republic of,* [2]*Daejin University, Korea, Republic of,* [3]*Hallym University, Korea, Republic of,* [4]*Medison Co. LTD., Korea, Republic of.*

P1B036-09 Evaluation of aberration parameters estimated from a low frequency transmission for medical acoustic imaging

H. Taki[1], T. Matsuda[1], **T. Sato**[2]; [1]*Kyoto Univ., Department of Systems Science Biomedical Engineering, Kyoto, Japan,* [2]*Kyoto Univ., Department of Communications and Computer Engineering, Graduate School of Informatics, Kyoto, Japan.*

P1C040-02 Motion detection in ultrasound image-sequence using tensor voting

Shuqiang Guo, Honghui Han, Masafumi Inba, Yasutaka Tamura, Hirotaka Yanagida; *Yamagata University, Graduate School of Science and Engineering, Japan.*

P1C041-03 Two approaches for tomographic density imaging using inverse scattering

Roberto Lavarello, Michael Oelze; *University of Illinois at Urbana-Champaign, USA.*

P1C042-04 Spectroscopic Imaging of Nano-particle Distribution in Biological Tissue Using Optically Assisted Ultrasonic Velocity-Change Detection

Sunsuke Kawakami, Satoshi Ishibashi, Naoki Nakamura, Takashi Mukaiyama, Tetsuya Matsuyama, Kenji Wada, Toshiyuki Matsunaka, Kenji Kono, Hiromichi Horinaka; *Osaka Prefecture Univ., Japan.*

P1C043-05 Attenuation Measurements for Ultrasonic Breast Imaging: Comparisons of Three Approaches

Chen-Han Chang, Sheng-Wen Huang, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*

P1C048-10 Analysis of the Difference-frequency Wave Generated by the Interaction of Two Axisymmetric and Co-focused Ultrasound Beams

G. Silva[1], F. Mitri[2], M. Fatemi[2]; [1]*Instituto de Matemática Pura e Aplicada, Laboratory of Fluid Dynamics, Rio de Janeiro, RJ, Brazil,* [2]*Mayo Clinic College of Medicine, Rochester, MN, USA.*

P1C049-11 Image-based ECG Sampling of IVUS Sequences

Aura Hernàndez-Sabaté, David Rotger, Debora Gil; *Computer Vision Center, Computer Science, Bellaterra, Barcelona, Spain.*

P1C050-12 Optimum design of echogenic needles for ultrasound guided nerve block

Yun Jing[1], Assad Oberai[2], Robert Bocala[2], Paul Bigeleisen[3]; [1]*Rensselaer Polytechnic Institute, Troy, NY, USA,* [2]*Rensselaer Polytechnic Institute, Mechanical Engineering, USA,* [3]*UPMC Presbyterian Hospital, USA.*

P1C051-13 Parametric Imaging of Blood Perfusion with Low-Cost Diagnostic Ultrasound Equipment

Hui Zhong, Xiaolin Gu, Mingxi Wan, Xiaowen Hu, Dan Lv, Liang Shen, Xiaomei Zhang; *Xi'an Jiaotong University, The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an, Shaanxi, China.*

P1C056-18 Transcranial Shear-Mode Ultrasound Imaging: Characterization of Point Spread Function and Assessment of Excitation Techniques

Ali Yousefi[1], **Kullervo Hynynen**[2]; [1]*University of Toronto, Electrical and Computer Engineering, Canada,* [2]*Sunnybrook Research Institute, Medical Biophysics, Canada.*

P1C057-19 An Intraoperative Transcranial Ultrasound Monitor (ITUM): Preliminary Results with Human Subjects

P. J. White[1], S. Whalen[2], S. C. Tang[1], G. T. Clement[1], A. J. Golby[2]; [1]*Harvard Medical School, Brigham and Women's Hospital, Dept. of Radiology, USA,* [2]*Harvard Medical School, Brigham and Women's Hospital, Dept. of Neurosurgery, USA.*

P1C058-20 Transcranial backscatter imaging of foreign bodies

Caleb H. Farny, Sai Chun Tang, **Greg T. Clement**; *Harvard Medical School, Radiology, Boston, MA, USA.*

3:00 pm – 4:30 pm | POSTER - Monday, November 3, 2008 | 2nd and 3rd Floor

Session: P1D. Medical Signal Processing

Chair: **Svetoslav Nikolov**
Technical University of Denmark, Denmark

P1D059-01 Range Measurement using Ultrasound FMCW Signals

Masanori Kunita, Masamitsu Sudo, Takashi Mochizuki; *Aloka Co., LTD., Research Laboratory, OME-SHI, Tokyo, Japan.*

P1D060-02 Three-dimensional segmentation of high-frequency ultrasound data echo-signal from dissected lymph nodes

A. Coron[1], **J. Mamou[2]**, M. Hata[3], J. Machi[3], E. Yanagihara[3], P. Laugier[1], E. J. Feleppa[2]; *[1]UPMC Univ Paris 06, UMR 7623, France, [2]Riverside Research Institute, USA, [3]University of Hawaii and Kuakini Medical Center, Honolulu, HI, USA.*

P1D061-03 Spectral analysis of ultrasound rf image data to monitor bubble formation in HIFU treatment

Chang-yu Hsieh, Penny Smith, Guoliang Ye; *University of Oxford, Biomedical Engineering, Department of Engineering Science, Oxford, United Kingdom.*

P1D066-08 Independent component analysis based speckle reduction for improved visualization of diseased liver tissue structures

Tadashi Yamaguchi[1], Hiroyuki Hachiya[2]; *[1]Chiba University, Japan, [2]Tokyo Inst. of Tech., Japan.*

P1D067-09 Separation of Nonlinear Pulse-Echo Signals Based on System Identification by Volterra Filters

Pornchai Phukpattaranont; *Prince of Songkla University, Department of Electrical Engineering, Hat Yai, Songkhla, Thailand.*

P1D068-10 A new dynamic decimation filter architecture using polyphase MACs for medical ultrasound imaging

Choong Lee[1], Jeong Cho[1], Tae-Wan Kim[1], Jung-Jun Kim[1], Tai-Kyong Song[1]; *Sogang University, Electronic engineering, Seoul, Korea, Republic of.*

Session: P1E. Transducer Modelling

Chair: **Levent Degertekin**
Georgia Institute of Technology, GA, USA

P1E073-05 Finite Element Analysis of a Piezoelectric Acoustic Levitator

Marco Aurélio Brizzotti Andrade, Flávio Buiochi, Julio Cesar Adamowski; *Universidade de São Paulo, Brazil.*

P1E074-06 Testing of a one dimensional model for Field II calibration

D. Bæk[1], J. A. Jensen[1], M. Willatzen[2]; *[1]Technical University of Denmark, Center for Fast Ultrasound Imaging, Department of Electrical Engineering, Kgs. Lyngby, , Denmark, [2]University of Southern Denmark, Mads Clausen Institute for Product Innovation, Sønderborg, Denmark.*

P1E075-07 Geometry Effect On Piezo-Composite Transducer With Triangular Pillars

Jianhua Yin[1], Mike Lee[1], Jeremy Brown[2], Stuart Foster[1]; *[1]Sunnybrook Health Science Center, Toronto, Canada, [2]Dalhousie University, Canada.*

P1E076-08 Modelling of the Electro-Acoustic Behaviour in Integrated Piezoelectric Structures under External Mechanical Stress

Pascal Tran, Guy Feuillard, **Mickael Lematre**; *LUSSI - University of Tours, France, Metropolitan.*

P1F080-03 Comparison between Synchronized Switching Damping technique and Velocity-Controlled Switching Piezoelectric Damping

Y.-P. Liu[1], D. Vasic[1], F. Costa[1], W.-J. Wu[2], C.-K. Lee[3]; *[1]Ecole Normale Superieure de Cachan, France, [2]National Taiwan Univ., Taipei, Taiwan, [3]National Taiwan University, Taipei, Taiwan.*

P1F081-04 Structural and electrical properties of Bi0.5(Na1-xKx)Tio3 thick films by a novel water-based gel-tape casting process

Tiantian Xie, Shenglin Jiang, Maoyan Fan; *Huazhong University of Science and Technology, China.*

P1F082-05 PIN-PMN-PT Single Crystal High Frequency Ultrasound Transducers for Medical Applications

Q. F. Zhou[1], B. P. Zhu[1], D. W. Wu[1], C. H. Hu[1], J. M. Cannata[1], J. Tian[2], P. D. Han[2], K. K. Shung[1]; *[1]University of Southern California, Los Angeles, CA, USA, [2]H. C. Materials Corp., Bolingbrook, Illinois, USA.*

Session: P1G. Sonar Propagation and Detection

Chair: **Valery Proklov**
IRE RAS, Russia

P1H087-01 Study of an Ultrasonic Rotary Motor Used for a Locking System

Jose Fernandez, **Markus Flueckiger,** Yves Perriard; *EPFL, Lausanne, Vaud, Switzerland.*

P1H088-02 Performance simulation of ultrasonic motors for compression cardiac assist

Ming Yang[1], Wangfu Zang[2], Shiyang Li[1]; *[1]Shanghai Jiaotong University, China, [2]Shanghai Ruijin Hospital, China.*

P1H089-03 Genetic Algorithm Optimization for a Surgical Ultrasonic Transducer

Daniel Porto, Aurélien Bourquard, Yves Perriard; *EPFL- STI - LAI, Lausanne, Switzerland.*

Session: P1H. Ultrasonic Motor Applications

Chair: **Takefumi Kanda**
Okayama University, Japan

P1D062-04 A Correction Scheme for Refraction and Time-of-Flight Artifacts in Limited-Angle Spatial Compound Imaging with High-Frequency Ultrasound

Joern Opretzka, Michael Vogt, Helmut Ermert; *Ruhr-University Bochum, Dept. of Electrical Engineering and Information Technology, Bochum, Germany.*

P1D063-05 Statistical spectral analysis for echo signals from microbubbles and solid spheres

Y. Yan[1], J. Hopgood[1], R. Steel[2], **V. Sboros[2]**; *[1]Institute for Digital Communications, University of Edinburgh, Edinburgh, Scotland, United Kingdom, [2]Medical Physics, University of Edinburgh, Edinburgh, Scotland, United Kingdom.*

P1D064-06 Pulse wave velocity in the Carotid artery

Gertrud Laura Sørensen, Julie Brinck Jensen, **Jesper Udesen,** Iben Kraglund Holfort, Jørgen Arendt Jensen; *Technical University of Denmark, Denmark.*

P1D065-07 Semi-Implicit Scheme based Nonlinear Diffusion Method in Ultrasound Speckle Reduction

Bo Wang, Dong C. Liu; *Sichuan University, Computer Science College, Chengdu, Sichuan, China.*

P1E069-01 Energy harvesting with piezoelectric cantilever transducer

Jiang-bo Yuan, Tao Xie, Wei-shan Chen, Jun-kao Liu; *Harbin Institute of Technology, Harbin, China.*

P1E070-02 Acoustic Waves in LiNbO3/SiO2/Water/Silicon Rubber Structures

Alexander Darinskii[1], **Manfred Weihnacht[2],** Hagen Schmidt[3]; *[1]Institute of Crystallography RAS Moscow, Russian Federation, [2]Innoxacs Dippoldiswalde, Germany, [3]IFW Dresden, Germany.*

P1E071-03 Optimal design of a wideband multi-mode ring transducer

Yongrae Roh, Zhi Tian, Susung Lee, Wonseok Lee; *Kyungpook National University, School of Mechanical Engineering, Daegu, Daegu, Korea, Republic of.*

P1E072-04 Optimising the Design of a New Electrostatic Transducer Incorporating Fluidic Amplification

A. Mulholland[1], E. Campbell[2], G. Hayward[2]; *[1]Univ. of Strathclyde, Department of Mathematics, Glasgow, Scotland, United Kingdom, [2]Univ. of Strathclyde, Department of Electronic and Electrical Engineering, Glasgow, Scotland, United Kingdom.*

P1E077-09 Finite Element Simulation of Piezoelectric Devices with Gyration and Temperature Effects

Andrey Nasedkin, Alexander Belokon; *Southern Federal University, Research Institute of Mechanics and Applied Mathematics, Rostov-on-Don, Russian Federation.*

Session: P1F. Piezoelectric & Ferroelectric Materials

Chair: **Levent Degertekin**
Georgia Institute of Technology, GA, USA

P1F078-01 The Lead-free Piezoelectric Ceramic Materials will be used for green and environmental protection type Medical Ultrasonic Equipments

Li Li Quanlu; *Shaanxi Normal University, Institute of Applied Acoustics, School of Physics and Information Technology, Xi'an, Shaanxi, China.*

P1F079-02 Stable resonance characteristics in CuO-modified lead-free 0.94(K0.5Na0.5)NbO3-0.06LiNbO3 ceramics sintered at optimal temperature

Yang Ying, **Wan Dandan**; *Precision Driving Laboratory, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China.*

P1G083-01 Simulation Model of Bottom Reverberation Signals for Horizontal Bistatic Receiving Array

Zhang Minghui, **Sun Hui**; *Harbin Engineering University, China.*

P1G084-02 The Research on Technique of Underwater Noise Source Identification by NAH in Semi-space

Dejiang Shang, Yongwei Liu, Chao Zhang, Lihua Liu; *Harbin Engineering University, College of Underwater Acoustics, Harbin, China.*

P1G085-03 The Investigation on Measuring the Coefficient of Sound Absorption at 20-60 kHz in Turbid Seawater

Yongwei Liu, De jiang Shang, Qi Li, Fengyang Chi; *Harbin Engineering University, College of Underwater Acoustics, Harbin, China.*

P1G086-04 A method for detecting of the target echo in reverberation noise

Chen Wenjian, Sun Hui, Zhu Jianjun, Zhu Guangping, Zhang Minghui; *Harbin Engineering University, Harbin, Heilongjiang, China.*

P1H090-04 Rotation Phase Analysis of Surface Particle Motion of Coiled Waveguide caused by Flexural Ultrasound Wave

Kohei Tomoda, **Masataka Ishiguro,** Masayuki Tanabe, Kan Okubo, Norio Tagawa; *Tokyo Metropolitan University, System Design, Hino, Tokyo, Japan.*

P1H091-05 A tiny ultrasonic motor used in an OCT endoscope*

TieYing Zhou, **Yu Chen,** Ping Xue, Tao Liu; *Tsinghua University, Department of Physics, Beijing, China.*

3:00 pm – 4:30 pm — POSTER SESSIONS - Monday, November 3, 2008 — 2nd and 3rd Floor

Session: P1I. Phononic Crystals II

Chair: **Jan Brown**
JB Consulting, MA, USA

P1I092-01 Finite Element Method for Analysis of Band Structures of Phononic Crystals

Jianbao Li[1], Yuesheng Wang[1], Chuanzeng Zhang[2]; [1]*Beijing Jiaotong University, Institute of Engineering Mechanics, Beijing, China,* [2]*University of Siegen, Department of Civil Engineering, Germany.*

P1I093-02 Influence of heterogeneous external fields on propagation of bulk acoustic waves in crystals

B. Sorokin[1], A. Marushyak[2], K. Aleksandrov[3]; [1]*Siberian Federal Univ., Russian Federation,* [2]*Siberian Thermotechical Institution, Russian Federation,* [3]*L.V. Kirensky Institute of Physics, Russian Federation.*

P1I094-03 Essential Role of Material Parameters on Two-dimensional Phononic Crystals

Zhou Xiaozhou[1], Wang Yuesheng[1], **Zhang Chuanzeng**[2]; [1]*Beijing Jiao-tong University, China,* [2]*University of Siegen, Germany.*

P1I099-08 Properties of a Phononic Crystal with Band-Gaps and Anomalous Ultrasound Refraction

Derek Wright, Richard Cobbold; *University of Toronto, Inst. Biomat. Biomed. Eng., Toronto, Ontario, Canada.*

Session: P1J. NDE Signal Processing

Chair: **Jafar Saniie**
Illinois Institute of Technology, IL, USA

P1J100-01 Time of Flight Ultrasonic CT Based on ML-EM for Wooden Pillars

Honghui Fan, Shuqiang Guo, Yasutaka Tamura, Hirotaka Yanagida; *Yamagata University, Graduate School of Science and Engineering, Japan.*

P1J101-02 Analysis of Hilbert-Huang Transform for Ultrasonic Nondestructive Evaluation

Yufeng Lu[1], **Erdal Oruklu**[2], Jafar Saniie[2]; [1]*Bradley University, Electrical and Computer Engineering, Peoria, IL, USA,* [2]*Illinois Institute of Technology, Electrical and Computer Engineering, Chicago, IL, USA.*

P1K105-02 NDE Using Laser Generated Ultrasound and Integrated Ultrasonic Transducer Receivers

C.-K. Jen[1], K.-T. Wu[2], M. Kobayashi[1], A. Blouin[1]; [1]*National Research Council Canada, Industrial Materials Institute, Boucherville, Quebec, Canada,* [2]*McGill University, Electrical and Computer Engineering, Montreal, Quebec, Canada.*

P1K106-03 Laser-Ultrasonic Shear Wave Inspection

Bruno Pouet, Nicolas Lefaudeux, Sebastien Breugnot, Philippe Clemenceau; *Bossa Nova Technologies, USA.*

P1K107-04 Design method for big 2-D ultrasonic arrays with controlled grating lobes levels

Javier Rodrigo Villazón Terrazas, Alberto Ibáñez Rodríguez, Montserrat Parrilla Romero, Patricia Nevado Carvajal; *Instituto de Automatica Industrial IAI-CSIC, Ensayos no Destructivos, Madrid, Spain.*

P1K108-05 A large aperture ultrasonic receiver for through-transmission determination of elastic constants of composite materials

Marcelo H.G. dos Santos, Marco Aurelio Andrade, Flavio Buiochi, **Julio Adamowski**; *University of Sao Paulo, Mechatronics, Sao Paulo, SP, Brazil.*

Session: P1L. BAW Modeling

Chair: **Alexandre Volatier**
TriQuint Semiconductor, USA

P1L113-01 Piezo Thermo Elastic Model for the Design Optimization of Resonant Beams

Gabriele Vigevani, Jan Kuypers, Albert Pisano; *University of California at Berkeley, Mechanical Engineering, Berkeley, CA, USA.*

P1L114-02 An eigenmode superposition model for lateral acoustic coupling between thin film BAW resonators

Tuomas Pensala, Johanna Meltaus, Markku Ylilammi; *VTT, Micro- and Nanoelectronics, Espoo, Finland.*

P1L115-03 Modelling of 2-D Lateral Modes in Solidly-Mounted BAW Resonators

Johanna Meltaus[1], Tuomas Pensala[1], Kimmo Kokkonen[2]; [1]*VTT Technical Research Centre of Finland, Espoo, Finland,* [2]*Helsinki University of Technology, Espoo, Finland.*

P1L120-08 Thermoelastic FEM-BEM model for Solidly Mounted Resonator

Didace Ekeom[1], Bertrand Dubus[2]; [1]*Microsonics, Saint-Avertin, France,* [2]*IEMN, Lille, France.*

P1L121-09 A Convolution-Perfectly Matched Layer (C-PML) absorbing boundary condition for elastic wave propagation in piezoelectric solids – Application to surface and Lamb waves propagation

Li YiFeng[1], **Bou Matar Olivier**[1], Galopin Elisabeth[2], Ducloux Olivier[2]; [1]*IEMN, LEMAC, France,* [2]*IEMN, France.*

P1I095-04 **Study on band structures and localization phenomenon of 2D phononic crystals with 1D quasi-periodicity**

Ali Chen, Yuesheng Wang; *Beijing Jiaotong University, Institute of Engineering Mechanics, Beijing, China.*

P1I096-05 **Research on two-dimensional phononic crystal with magnetorheological material**

Bin Wu, **Ruiju Wei,** Cunfu He, Huanyu Zhao; *Beijing University of Technology, Beijing, China.*

P1I097-06 **Electromechanical coupling coefficient of semiconducting hexagonal crystal measured by Brillouin scattering**

Takahiko Yanagitani[1], Taisuke Yoshida[2], Mami Matsukawa[2]; [1]*Nagoya Institute of Technology, Department of Applied Physics, Nagoya, Japan,* [2]*Doshisha University, Faculty of Engineering, Kyotanabe, Japan.*

P1I098-07 **Defects in Single-Crystalline Silicon High Frequency Phononic Crystal Slabs**

Saeed Mohammadi[1], Ali A. Eftekhar[1], Abdelkrim Khelif[2], William D. Hunt[1], Ali Adibi[1]; [1]*Georgia Institute of Technology, Atlanta, Georgia, USA,* [2]*Institut Femto-ST, France.*

P1J102-03 **An Efficient Sparse Signal Decomposition Technique for Ultrasonic Signal Analysis Using Envelope and Instantaneous Phase**

Ramazan Demirli[1], Jafar Saniie[2]; [1]*Canfield Scientific, Inc, USA,* [2]*Illinois Institute of Technology, Electrical and Computer Engineering Department, USA.*

P1J103-04 **Improved SVM for detecting signal in reverberation**

Zhu Guang-ping, **Sun Hui**; *College of Underwater Acoustic Engineering Harbin Engineering University, Harbin, Heilongjiang, China.*

Session: P1K.
NDE Applications

Chair: **Larry Kessler**
Sonoscan, USA

P1K104-01 **Progress of Matching Network for Passive Remote Hybrid Sensor Based on SAW Resonator**

Dongxiang Zhou, Jianling Wang, Qiuyun Fu, Wei Luo; *Huazhong University of Science & Technology, Department of Electronic Science & Technology, Wuhan, Hubei, China.*

P1K109-06 **Implicit Calibration of Simulation Models for Ultrasonic Transducers**

Johan E. Carlson, Fredrik Hägglund, Jesper Martinsson, Amin Saremi; *Lulea University of Technology, Dept. of Computer Science and Electrical Engineering, Lulea, Sweden.*

P1K110-07 **Thin Finite Plate Modeling and Experimental Studies on Lamb Wave Propagation at Various Boundary Conditions**

Y. Liu[1], J.-P. Nikolovski[2], N. Mechbal[3], M. Hafez[2], M. Vergé[3]; [1]*Sensory Interfaces Laboratory, CEA LIST and LMSP (CNRS 8106), ENSAM, France,* [2]*CEA LIST, Sensory Interfaces Laboratory, Fontenay-aux-Roses, France,* [3]*ENSAM, LMSP, Paris, France.*

P1K111-08 **Research on clamping force in resonant ultrsound spectroscopy**

Hang Guo, Yi Zhang, Liming Zou; *Xiamen University, Pen-Tung Sah MEMS Research Center, Xiamen, Fujian, China.*

P1K112-09 **Welding of flat copper braid wires using ultrasonic complex vibration - Direct machining of terminal parts on flat braided wires**

Jiromaru Tsujino[1], Tetsugi Ueoka[1], Eiichi Sugimoto[2]; [1]*Kanagawa University, Faculty of Engineering, Yokohama, Kanagawa, Japan,* [2]*Asahi EMS Co., Ltd, Tokyo, Japan.*

P1L116-04 **Green's Function Analysis of Lamb Wave Resonators**

Jan Kuypers, Yun-Ju Lai, Ting-Ta Yen, Chih-Ming Lin, Albert Pisano; *University of California at Berkeley, Mechanical Engineering, Berkeley, CA, USA.*

P1L117-05 **Effect of size and shape on the performances of BAW resonators: a model and its applications**

Claude Muller, Marc-Alexandre Dubois; *CSEM, Neuchatel, Switzerland.*

P1L118-06 **Nonlinear distributed model for IMD prediction in BAW resonators**

Eduard Rocas[1], Carlos Collado[1], Jordi Mateu[2], Alberto Padilla[1], Joan M. O'Callaghan[1]; [1]*UPC, Spain,* [2]*UPC and CTTC, Spain.*

P1L119-07 **Nonlinear effects in solidly-mounted ZnO BAW resonators**

Arto Nurmela, Hannu Salminen, Tomi Mattila, Markku Ylilammi; *VTT Technical Research Center of Finland, Finland.*

Session: P1M. Microwave Acoustic Devices for Wireless Front Ends

Chair: **Robert Weigel**
University of Erlangen, Germany

P1M122-01 **Novel MMS SAW filter structure with a new type of chirping for High Load Impedance applications**

Aleh Loseu, Jagan Rao; *RF Micro Devices, USA.*

P1M123-02 **Design of Narrower Bandwidth Ladder-type Filters with Sharp Transition Bands Using Mutually Connected Resonator Elements**

Tomoya Komatsu, Yasutomo Tanaka, Ken-ya Hashimoto, Tatsuya Omori, Masatsune Yamaguchi; *Chiba University, Dept. EEE, Chiba, Japan.*

P1M124-03 **Surface Acoustic Wave Duplexer composed of SiO2 film with Convex and Concave on Cu-electrodes/LiNbO3 Structure**

Yasuharu Nakai, Takeshi Nakao, Kenji Nishiyama, Michio Kadota; *Murata Mfg. Co., Ltd, Japan.*

P1M129-08 **Study on SAW Devices Having Face to Face Aligned Packaged Structure**

Takanori Yamazaki, Yuji Terao, Keishin Koh, Koji Hohkawa; *Kanagawa Institute of Technology, Japan.*

P1M130-09 **Switchable Low Loss SAW Filter Bank with SAW Notches**

Jiansheng Liu, Jiuling Liu, Shunzhou Li, Shitang He, Yong Liang; *Institute of Acoustics, Chinese Academy of Sciences, China.*

P1M125-04 **Surface Acoustic Wave filter in high frequency with Narrow Bandwidth and Excellent Temperature Property** **Michio Kadota**, Takeshi Nakao, Takaki Murata, Kenji Matsuda; *Murata Mfg. Co., Ltd, Japan.*				
P1M126-05 **Small-sized SAW Duplexers with Wide Duplex Gap on a SiO2/Al/LiNbO3 Structure by Using Novel Rayleigh-mode Spurious Suppression Technique** **Hidekazu Nakanishi**, Hiroyuki Nakamura, Yosuke Hamaoka, Yukio Iwasaki, Hiroki Kamiguchi; *Panasonic Electronic Devices Co., Ltd., Japan.*				
P1M127-06 **Balanced Front-End SAW Modules with Improved Selectivity at Low Frequency Offsets for Handheld Transceivers** **Sergei Doberstein**; *ONIIP, Russian Federation.*				
P1M128-07 **Compact Ladder Type SAW Resonator Filter** Anatoly Rusakov, **Jidong Dai**; *RF Monolithics, Dallas, TX, USA.*				

TUESDAY ORAL

8:30 am – 10:00 am — Oral --- Tuesday, November 4, 2008

	Session 1D. Elasticity Imaging: Applications	Session 2D. Contrast Agents: Target and Therapeutics	Session 3D. Medical Signal Processing I	Session 4D. cMUTs	Session 5D. Industrial Measurement	Session 6D. Bulk Wave Resonators - I
	Chair: **Matthew O'Donnell** *University of Washington, WA., USA*	***Chair:*** **Tom Matula** *Applied Physics Laboratory, University of Washington, USA*	***Chair:*** **Ton van der Steen** *Erasmus Medical Center, The Netherlands*	***Chair:*** **Omer Oralkan** *Stanford University, CA, USA*	***Chair:*** **Jir0maru Tsujino** *Kanagawa University, Yokohama, Japan*	***Chair:*** **John D. Larson III** *Avago Technology, USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
8:30 am	***1D-1*** **Ablation Monitoring with 2D and 3D Elastography** Hassan Rivaz[1], **Emad Boctor[1]**, Gabor Fichtinger[2], Gregory Hager[1], Ioana Flemming[1]; *[1]Johns Hopkins University, USA, [2]Queens University, Canada.*	***2D-1*** **Oil-filled polymeric ultrasound contrast agent as local drug delivery system for lipophilic drugs** **K. Kooiman[1]**, M. R. Böhmer[2], M. Emmer[1], H. J. Vos[1], C. Chlon[2], W. T. Shi[3], C. S. Hall[3], S. H.P.M. de Winter[2], K. Schroën[4], M. Versluis[5], N. de Jong[1], A. van Wamel[1]; *[1]Erasmus MC, Netherlands, [2]Philips Research Laboratories Eindhoven, Netherlands, [3]Philips Research North America, USA, [4]Wageningen Univ., Netherlands, [5]Univ. of Twente, Netherlands.*	***3D-1*** **Oriented Demodulation and Frequency Splitting for Directive Filtering Based Compounding** **Paul Liu[1]**, Dong Liu[2]; *[1]Saset (Chengdu) Inc., Chengdu, Sichuan, China, [2]Sichuan University, College of Computer Science, Chengdu, Sichuan, China.*	***4D-1*** **Analysis of Charge Effects in High Frequency CMUTs** **Kjersti Midtbø**, Arne Rønnekleiv; *Norwegian University of Science and Technology, Norway.*	***5D-1*** **Ultrasonic Velocity Measurement for Analysis of Brick Structure** **Tadashi Kojima[1]**, Hiroshi Haya[2], Kuniyuki Minegishi[2], Ri Nguyen[3]; *[1]U T Lab., Akishima-shi, Tokyo, Japan, [2]Railway Technical Research Institute, Kiso Dokouzou, Kokubunji-shi, Tokyo, Japan, [3]JRSE Co.,Ltd., Kokubunji-shi, Tokyo, Japan.*	***6D-1*** **Theory, and Experimental Verifications of the Resonator Q and Equivalent Electrical Parameters due to Viscoelastic, Conductivity and Mounting Supports Losses** **Yook-Kong Yong[1]**, Mihir Patel[1], Masako Tanaka[2]; *[1]Rutgers University, Civil and Environmental Engineering, Piscataway, New Jersey, USA, [2]Epson Toyocom, Japan.*
8:45 am	***1D-2*** **Comparison of Ultrasound Strain Images with Multi-modality Imaging Techniques in Liver RF Ablation Assessment: Initial *Ex vivo* and Clinical Results.** **A. Fernandez[1]**, O. Kolokythas[2], T. Gauthier[3], D. Herżka[1], H. Xie[1]; *[1]Philips Research North America, USA, [2]Univ. of Washington Medical Center, .USA, [3]Philips Med. Sys., USA.*	***2D-2*** **Ultrasound Activated Paclitaxel Delivery in Mice Using a Combined Therapy and Imaging Probe System** **W. Shi[1]**, M. Böhmer[2], M. Celebi[3], A. van Wamel[4], C. T. Chin[1], C. Chlon[2], A. Klibanov[3], C. Hall[1]; *[1]Philips Research North America, USA, [2]Philips Research Europe, Netherlands, [3]Univ. of Virginia, USA, [4]Erasmus MC, Netherlands.*	***3D-2*** **A new frequency compounding technique for super harmonic imaging** **Guillaume Matte[1]**, Paul van Neer[1], Jerome Borsboom[1], Martin Verweij[2], Nico de Jong[1]; *[1]Erasmus MC, Biomedical Engineering, Rotterdam, Netherlands, [2]T.U. Delft, Delft, Netherlands.*	***4D-2*** **Analysis of the Charging Problem in Capacitive Micro-machined Ultrasonic Transducers** **S. Machida**, S. Migitaka, T. Kobayashi, H. Tanaka, K. Hashiba, H. Enomoto, Y. Tadaki; *Hitachi, Ltd., Tokyo, Japan.*	***5D-2*** **PiQC - A Process integrated Quality Control for Nondestructive Evaluation of Ultrasonic Wire Bonds** **Sebastian Hagenkötter**, Michael Brökelmann, Hans J. Hesse; *Hesse & Knipps GmbH, Paderborn, Germany.*	

9:00 am	**1D-3 Assessment of the elastic properties of heterogeneous tissues using transient elastography: Application to the liver.** **C. Bastard**[1], Yassine Mofid[1], J. Oudry[1], J.-P. Remenieras[2], L. Sandrin[1]; [1]*Echosens, Paris, France,* [2]*Univ. François Rabelais de Tours, France.*	**2D-3 Microbubble dynamics in microvessels: Observations of microvessel dilation, invagination and rupture** **H. Chen**, A. A. Brayman, M. R. Bailey, T. J. Matula; *Applied Physics Laboratory, Univ. of Washington, Seattle, WA, USA.*	**3D-3 Segmentation of Speckle-Reduced 3D Medical Ultrasound Images** **P. Pedersen**[1], J. D. Quartararo[1], T. Szabo[2]; [1]*Worcester Polytechnic Inst., Electrical & Computer Eng., MA, USA,* [2]*Boston University, Biomedical Engineering, Boston, MA, USA.*	**4D-3 Investigation of charge diffusion in Capacitive Micromachined Ultrasonic Transducers (CMUTs) using optical interferometry** **H. Martinussen**, A. Aksnes, H. E. Engan; *Norwegian Univ. of Sci. and Tech., Trondheim, Norway.*	**5D-3 Evaluating technology of spot weld quality for coated high strength steel sheet based on ultrasonic guide wave** **Z. Chen**[1], Y. Shi[1], H. Zhao[2]; [1]*Inst. of Advanced Materials Processing Technology, China,* [2]*Tsinghua University, China.*	**6D-2 Method for Computing Q vs. Frequency for Piezoelectric Resonators** **David Feld**[1], Reed Parker[2], Richard Ruby[2]; [1]*AVAGO Technologies, WSD, San Jose, CA, USA,* [2]*AVAGO Technologies, USA.*
9:15 am	**1D-4 ShearWave™ Elastography: a new ultrasound imaging mode for assessing quantitatively soft tissue elasticity** **J. Bercoff**[1], A. Criton[1], J. Souquet[1], M. Tanter[2], T. Deffieux[3], J. L. Gennisson[3], M. Fink[2], V. Juhan[3], A. Colavolpe[3], D. Amy[4], A. Athanasiou[5] [1]*Supersonic Imagine, France,* [2]*Laboratoire Ondes et Acoustique, France,* [3]*Hopital La Timone, France,* [4]*Cabinet de Radiologie Amy Fabry, France,* [5]*Inst. Curie, France.*	**2D-4 Parameter space for microbubble wall interaction estimated from gel phantom** **C. Caskey**[1], S. Qin[1], P. Dayton[2], K. Ferrara[1]; [1]*Univ. of California at Davis, USA,* [2]*University of North Carolina, USA.*	**3D-4 Ultrasonic Molecular Imaging of Primordial Angiogenic Vessels in the Papilloma Virus Transgenic Mouse with αvβ3-Integrin Targeted Nanoparticles Using Renyi Entopy-Based Signal Detection** **K. Wallace**, J. Marsh, L. Thomas, R. Neumann, J. Arbeit, G. Lanza, S. Wickline; *Washington Univ. Sch. of Med., USA.*	**4D-4 Single chip CMUT arrays with integrated CMOS electronics: Fabrication Process Development and Experimental Results** J. Zahorian, R. Guldiken, G. Gurun, M. S. Qureshi, M. Balantekin, P. Hasler, **F. L. Degertekin**; *Georgia Institute of Technology, USA.*	**5D-4 Modeling and Measurement of Piezoelectric Ultrasonic Transducers for Transmitting Guided Waves in Rails** **Philip Loveday**; *CSIR, South Africa.*	**6D-3 Constancy on Quality Factor of Dual-T Quartz Crystal Resonator Circuit** **T. Adachi**[1], D. Akamatsu[1], K. Hirama[2], Y. Nakagawa[3], T. Yanagisawa[4]; [1]*Yokohama National Univ., Japan,* [2]*Yamanashi Univ., Japan,* [3]*Yamanashi Univ., Japan,* [4]*Tokyo Inst. of Tech., Japan.*
9:30 am	**1D-5 Ultrasound Displacement Estimation Combining Viterbi Processing and Phase Rotated Correlation Coefficient Filter** **L. Huang**[1], Y. Petrank[1], C. Jia[2], S.-W. Huang[2], M. O'Donnell[1]; [1]*Univ. of Washington, Seattle, WA, USA,* [2]*Univ. of Michigan, Ann Arbor, MI, USA.*	**2D-5 Micro Bubble Adhesion to Target Wall by Frequency Sweep of Ultrasonic Pumping Wave** **Yoshiki Yamakoshi**, Hideaki Kawamoto; *Gunma University, Faculty of Engineering, Kiryu-shi, Gunma, Japan.*	**3D-5 Multi-Frequency Processing for Lumen Enhancement with Wideband Intravascular Ultrasound** **Wenguang Li**, Rory Carrill, Jian Yuan, Tat-Jin Teo, Lewis(Tom) Thomas; *Boston Scientific, USA.*	**4D-5 Front-end CMOS electronics for monolithic integration with CMUT arrays: Circuit design and initial experimental results** **G. Gurun**[1], M. S. Qureshi[1], M. Balantekin[1], R. Guldiken[1], J. Zahorian[1], S.-Y. Peng[1], A. Basu[1], M. Karaman[2], P. Hasler[1], L. Degertekin[1]; [1]*Georgia Inst. of Technology, USA,* [2]*Isik University, Turkey.*	**5D-5 Ultrasonic imaging of solid railway wheels** Montserrat Parrilla, **Patricia Nevado,** Alberto Ibáñez, Jorge Camacho, José Brizuela, Carlos Fritsch; *Instituto de Automática Industrial (CSIC), La Poveda (Arganda), Madrid, Spain.*	**6D-4 Unique Properties of HBAR Characteristics** **Georgy Mansfeld**, Sergey Alekseev, Natalia Polzikova; *Institute Of Radioengeneering and Electronics RAS, Moscow, Russian Federation.*
9:45 am	**1D-6 An Algorithm for Strain Reconstruction from Irregularly Sampled, Incomplete Measurements** Mikhail Danilouchkine, Frits Mastik, **Antonius van der Steen**; *Erasmus Medical Center, Netherlands.*	**2D-6 Adherence of Platelet and Fibrin Targeted Ultrasound Contrast Bubbles to Human Blood Clots In Vitro** S. Fernandes[1], **F. Forsberg**[2], S. Gilmore[3], S. Shevchuk[3], A. Kerschen[3], T. Matsunaga[3], R. Zutshi[3]; [1]*Thomas Jefferson Univ. and Drexel Univ., USA,* [2]*Thomas Jefferson Univ., USA,* [3]*ImaRx Therapeutics Inc, USA,* [4]*ImaRx Therapeutics Inc and Univ. of Arizona, USA.*	**3D-6 Green's Function Method for Modeling Nonlinear Three-dimensional Pulsed Acoustic Fields in Diagnostic Ultrasound Including Tissue-like Attenuation** **J. Huijssen**[1], M. D. Verweij[1], N. De Jong[2]; [1]*Delft Univ. of Tech., Netherlands,* [2]*Erasmus Medical Centre Rotterdam, Netherlands.*	**4D-6 Fabrication and Characterization of Surface Micromachined CMUT with a Bossed Membrane** **M. Wang**[1], J. Chen[1], X. Cheng[2], C. Li[3], X. Liu[4]; [1]*Univ. of New Mexico, USA,* [2]*University of New Mexico, USA,* [3]*Nanyang Tech. Univ., Singapore,* [4]*The Eastman Kodak Company, USA.*	**5D-6 Smart Screws as Load and Temperature Probes** **Kuo-Ting Wu**[1], Makiko Kobayashi[2], Cheng-Kuei Jen[2]; [1]*McGill University, Electrical and Computer Engineering, Canada,* [2]*National Research Council Canada, Industrial Materials Institute, Canada.*	**6D-5 Three operation modes of an acoustic wave device with the lateral field excitation structure** **W. Wang**, C. Zhang, Z. Zhang, Y. Liu, G. Feng, G. Jing; *Tsinghua University, Department of Precision Instruments and Mechanology, Beijing, China.*

TUESDAY ORAL

10:30 am – 12:00 pm — Oral --- Tuesday, November 4, 2008

	Session 1E. Clinical Cancer Imaging	Session 2E. Arrays and Therapeutic Devices	Session 3E. Medical Signal Processing II	Session 4E. cMUT Modeling	Session 5E. Flow Measurements	Session 6E: Ultrasonic Wave Propagation - I
	Chair: **Stuart Foster** *University of Toronto, Canada*	*Chair:* **Shin Umemura** *Kyoto University, Japan*	*Chair:* **Pai-Chi Li** *National Taiwan University, Taipei, Taiwan*	*Chair:* **Paul Reynolds** *Weidlinger Associates Inc, USA*	*Chair:* **Edward Haeggstorm** *Institute of Physics, University of Helsinki, Finland*	*Chair:* **Georg Mansfeld** *Russian Academy of Sciences, Russia*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
10:30 am	*1E-1* **Making microbubbles work for ultrasound: Technical and broader challenges** **Peter Burns**; *University of Toronto, Dept Medical Biophysics, Toronto, ON, Canada*	*2E-1* **Electronically steerable large-scale ultrasound phased-array for noninvasive transcranial therapy** **Junho Song**, Kullervo Hynynen; *University of Toronto, Imaging Research, Sunnybrook Health Science Center and Department of Biophysics, Toronto, ON, Canada.*	*3E-1* **Mirrored Motion-Compensation for Complementary-Coded Medical Ultrasonic Imaging** **Cormac Cannon**, John Hannah, Steve McLaughlin; *University of Edinburgh, Institute of Digital Communications, Edinburgh, Lothians, United Kingdom.*	*4E-1* **Finite Element Analysis of Stress Stiffening Effects in CMUTs** **Mario Kupnik**, Ira O. Wygant, Butrus T. Khuri-Yakub; *Edward L. Ginzton Laboratory, Stanford University, CA, USA.*	*5E-1* **New Developments in Ultrasonic Gas Analysis and Flowmetering** **Saul Jacobson**; *sauljay@gmail.com, Australia.*	*6E-1* **Non-axisymmetric ultrasonic guided waves in an embedded waveguide** **Yaacoubi Slah**[1], Laguerre Laurent[1], Ducasse Eric[2], Deschamps Marc[2]; *[1]LCPC, RMS, Bouguenais, Nantes, France, [2]Imp, Talence, Bordeaux, France.*
10:45 am		*2E-2* **Radiation force localization of HIFU therapeutic beams coupled with MR-Elastography treatment monitoring – In vivo application to the rat brain –** **Benoit Larrat**, Mathieu Pernot, Jean-François Aubry, Ralph Sinkus, Mickael Tanter, Mathias Fink; *ESPCI, CNRS UMR 7587, université Paris 7, France.*	*3E-2* **3D Mouse Cardiac Motion Estimation Facilitated using RF Signal Decorrelation** **Christopher D. Garson**, Yinbo Li, John A. Hossack; *University of Virginia, Biomedical Engineering, Charlottesville, VA, USA.*	*4E-2* **Calculation of equivalent parameters in CMUT 1-D theoretical model** **Wenchao Zhou**, Ting Yu, Fengqi Yu; *Shenzhen Institute of Advanced Technology, CAS, Shenzhen, 518067, China, Department of Integrated Electronics, Shenzhen, Guangdong, China.*		*6E-2* **The acoustoelastic effect of Love waves in elastic-plastic deformed layered rocks** Jinxia Liu, Zhiwen Cui, **Kexie Wang**; *Jilin University, Changchun, China.*

11:00 am	**1E-2 The Role of Contrast Enhanced Ultrasound (CEUS) in Oncology** **Stephanie Wilson**; *University of Calgary, Department of Diagnostic Imaging, Calgary AB, , Canada.*	**2E-3 Molecular focusing of high-intensity ultrasound: Time-reversal focusing applied to targeted ultrasound contrast agents** **Olivier Couture**, Mickael Tanter, Mathias Fink; *LOA, ESPCI, France.*	**3E-3 Reducing Peak Hopping Artifacts in Ultrasonic Strain Estimation with the Viterbi Algorithm** **Yael Petrank**, Lingyun Huang, Matthew O'Donnell; *University of Washington, Bioengineering, USA.*	**4E-3 Fast and Accurate CMUT Modeling using Equivalent Circuits with Lumped Parameters** **Arne Rønnekleiv;** *Norwegian University of Science and Technology, Norway.*	**5E-2 A New Calibration Method for Ultrasonic Clamp-On Sensors** **Oliver Keitmann-Curdes**, Bernhard Funck; *Flexim GmbH, Berlin, Germany.*	**6E-3 Diffraction divergence of SH_0 wave in thin piezoelectric plate of lithium niobate** Boris Zaitsev, **Andrei Teplykh**; *Institute of Radio Engineering and Electronics of RAS, Saratov Branch, Saratov, Russian Federation.*
11:15 am		**2E-4 Design and Test of a Monolithic Ultrasound-Image-guided HIFU Device using Annular CMUT Rings** **M. Wang[1]**, J. Chen[1], X. Cheng[1], J.-C. Cheng[2], P.-C. Li[3]; *[1]Univ. of New Mexico, USA, [2]Chang Gung Univ., Tao Yuan, Taiwan,[3]National Taiwan Univ., Taipei, Taiwan.*	**3E-4 Precision of Needle Tip Localization Using a Receiver in the Needle** **Svetoslav I. Nikolov**, Jørgen A. Jensen; *Technical University of Denmark, Department of Electrical Engineering, Kgs. Lyngby, Denmark.*	**4E-4 Beam Structure for CMUT with Desired Frequency Spectrum** **Hiroki Tanaka**, Takashi Azuma, Shuntaro Machida, Kunio Hashiba, Takashi Kobayashi; *Hitachi, Central Research Laboratory, Tokyo, Japan.*	**5E-3 Analysis of inhomogeneous stress distribution in surface acoustic wave resonator for wireless blood pressure sensor** **D. Hermelin[1]**, M. Bruniaux[1], B. Belgacem[2], D. William[1], S. Ballandras[1]; *[1]Institut FEMTO-ST, Besancon, France, [2]Senseor, Besancon, France.*	**6E-4 High frequency wave propagation in structured materials: modelling results** **Roger Young[1]**, Paul Harris[1], Andrew Dawson[2], Frederic Lecarpentier[1]; *[1]Industrial Research Ltd, New Zealand, [2]Victoria University, New Zealand.*
11:30 am	**1E-3 the clinical application of ultrasound contrast imaging** **Yuxin Jiang;** *Pekin union medical college hospital, Department of diagnostic ultrasound, Beijing, China.*	**2E-5 Space-filling, aperiodic array ultrasonic therapy transducers** **Balasundar Raju**, Christopher Hall; *Philips Research North America, Ultrasound Imaging & Therapy, Briarcliff Manor, NY, USA.*	**3E-5 Quantitative Bladder Volume Assessment on the Basis of Nonlinear Wave Propagation** **Egon J.W. Merks**, Nicolaas Bom, Nico de Jong, Antonius F.W. van der Steen; *ErasmusMC, Biomedical Engineering, Rotterdam, Netherlands.*	**4E-5 Optimum design of circular CMUT membranes for high quality factor in air** **Kwan Kyu Park**, Hyunjoo Jenny Lee, Mario Kupnik, Omer Oralkan, Butrus (Pierre) T. Khuri-Yakub; *Stanford University, Edward L. Ginzton Laboratory, USA.*	**5E-4 A Novel Nozzle-Diffuser Micropump Actuated by Bubble Formation from Ultrasonic Cavitation** **C.-H. Cheng**, C. Chao, Y. Zhu, W W. F. Leung; *The Hong Kong Polytechnic Univ., Hong Kong, China.*	**6E-5 Wireless Drive of a Piezoelectric Plate by Dipole Antenna** **Satyanarayan Bhuyan**, Junhui Hu; *Nanyang Technological University, Singapore.*
11:45 am		**2E-6 Image-Guided Refocusing of Dual-Mode Ultrasound Arrays(DMUAs)** **John Ballard**, Emad Ebbini; *University of Minnesota, USA.*	**3E-6 2D Filter Design for the Reduction of Beamforming Artifacts in Coarsely-sampled Imaging Apertures** **Yayun Wan**, Emad Ebbini; *University of Minnesota, Electrical and Computer Engineering, Minneapolis, Minnesota, USA.*	**4E-6 A Viscoelastic Finite Element Model for Polymer Coatings on CMUTs** **Der-Song Lin**, Xuefeng Zhuang, Serena H. Wong, Mario Kupnik, Butrus T. Khuri-Yakub; *Stanford University, Edward L. Ginzton Laboratory, Stanford, CA, USA.*		**6E-6 Thermoacoustic Effect in Thin Metallic Film Contacting with Liquid** **V. Andreev[1]**, V. Vdovin[2]; *[1]Moscow State University, Physics Department, Moscow, Russian Federation, [2]Institute of Radio Engineering and Electronics, Moscow, Russian Federation.*

TUESDAY ORAL

1:30 pm – 3:00 pm — Oral --- Tuesday, November 4, 2008

	Session 1F. 3-D Elasticity Imaging	Session 2F. Ultrasound Med. Del. of Therapeutic Agents	Session 3F. Photoacoustic Imaging	Session 4F. SAW vs BAW	Session 5F. Acoustic Imaging and Microscopy	Session 6F: Ultrasonic Motors & Droplet Processing
	Chair: **Anne Hall** *General Electric Medical Systems, USA*	*Chair:* **Larry Crum** *University of Washington, WA, USA*	*Chair:* **Georg Schmitz** *Ruhr-Universität Bochum, Germany*	*Chair:* **Rich Ruby** *Avago Technologies, USA*	*Chair:* **David Greve** *Carnegie Mellon, USA*	*Chair:* **Takefumi Kanda** *Okayama University, Japan*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
1:30 pm	***1F-1*** **Three Dimensional Elastic Modulus Reconstruction for Non-invasive, Quantitative Monitoring of Tissue Scaffold Mechanical Property Changes** **M. Richards**[1], C. Jeong[2], S. Hollister[2], J. Rubin[1], K. Kim[1]; *[1]Univ. of Michigan, USA, [2]Univ. of Michigan, USA, [3]University of Pittsburgh, Cardiovascular Institute, USA.*	***2F-1*** **An In vivo Investigation of the Use of Pulsed High Intensity Focused Ultrasound for Thrombolysis** **Kullervo Hynynen**[1], Cameron Wright[1], David Goertz[2]; *[1]Sunnybrook Health Sciences Centre, Canada, [2]Sunnybrook Health Sciences Centre, Imaging Research, Toronto, Ontario, Canada.*	***3F-1*** **Embracing the era of multicore processors and GPU-computing for realtime ultrasonic and photoacoustic imaging** **R. Zemp**[1], L. Song[2], R. Bitton[3], K. Shung[4], L. Wang[2]; *[1]Univ. of Alberta, Canada, [2]Washington University in St. Louis, USA, [3]Stanford University, USA, [4]University of Southern California, USA.*	***4F-1*** **SAW and BAW Technologies for RF Filter Applications: A Review of the Relative Strengths and Weaknesses** **Robert Aigner**; *TriQuint Semiconductor, Apopka, Florida, USA.*	***5F-1*** **Probabilistic Mud Slowness Estimation from Sonic Array Data** Hugues Djikpesse, **Henri-Pierre Valero**; *Schlumberger-Doll Research, Mathematics & Modeling, Cambridge, MA, USA.*	***6F-1*** **Initial Growth of Ultrasonically Vaporized Perfluorocarbon Microdroplets** **Kevin Haworth**, Oliver Kripfgans; *University of Michigan, Radiology, Ann Arbor, MI, USA.*
1:45 pm	***1F-2*** **Towards Three-dimensional Acoustic Radiation Force Impulse (ARFI) Imaging of Human Prostates <I>in vivo</I>** **Liang Zhai**[1], Jeremy Dahl[2], Kathy Nightingale[2]; *[1]Duke University, Biomedical Engineering, USA, [2]Duke University, USA.*	***2F-2*** **The size of pores on the cell membrane generated in sonoporation** **Yun Zhou**, Cheri Deng; *University of Michigan, Biomedical Engineering, Ann Arbor, Michigan, USA.*	***3F-2*** **Design of Catheter for Combined Intravascular Photoacoustic and Ultrasound Imaging** **Bo Wang**, Andrei Karpiouk, Stanislav Emelianov; *University of Texas at Austin, Biomedical Engineering, Austin, TX, USA.*		***5F-2*** **Development of a Micro-LFB Ultrasonic Device and Its Application to Elastic Inhomogeneity Evaluation of ZnO Crystal** Jun-ichi Kushibiki, **Yuji Ohashi,** Mototaka Arakawa, Tomoya Tanaka, Sho Yoshida; *Tohoku University, Graduate School of Engineering, Sendai, Miyagi, Japan.*	***6F-2*** **Droplets generation by a torsional bolt-clamped Langevin-type transducer and micropore plate** **T. Harada**[1], N. Ishikawa[1], T. Kanda[1], K. Suzumori[1], Y. Yamada[2], K.-I. Sotowa[3]; *[1]Okayama University, Japan, [2]Okayama Prefecture Industrial Promotion Foundation, Japan, [3]Tokushima University, Japan.*

2:00 pm	**1F-3 Full 3D Elasticity Reconstruction Using Supersonic Shear Imaging** **J. Gennisson**[1], N. Felix[2], T. Deffieux[1], J. Bercoff[2], M. Tanter[1], M. Fink[1]; *[1]Laboratoire Ondes Et Acoustique, Paris, France, France, [2]Supersonic Imagine, France.*	**2F-3 Enhancement of Antiangiogenic Gene Therapy on Hepatocellular Carcinoma by Endostatin and Sonoporation** **K.-C. Tsai**[1], L.-H. Hwang[2], S.-J. Yang[1], C.-k. Liao[2], W.-L. Lin[1], M.-J. Shieh[1], W.-S. Chen[3]; *[1]National Taiwan Univ., Taipei, Taiwan, [2]National Taiwan University, Taipei, Taiwan, [3]National Taiwan University Hospital, Taipei, Taiwan.*	**3F-3 Development of a hybrid tissue diagnostic system combining high frequency ultrasound and photoacoustic imaging with lifetime fluorescence spectroscopy** Y. Sun[1], **D. Stephens[1],** J. Park[1], Y. Sun[1], J. Cannata[2], K. Shung[2], L. Marcu[1]; *[1]Univ. of California, Davis, USA, [2]Univ. of Southern California, USA.*	**4F-2 High Selectivity SAW Duplexer for W-CDMA Band VIII** **Andreas Bergmann**, Andreas Waldherr, Hans-Peter Kirschner, Karl Wagner; *EPCOS AG, Surface Acoustic Wave Components, Munich, Germany.*	**5F-3 Measurement Model for Attenuation of Leaky Surface Acoustic Waves by the Line-Focus-Beam Ultrasonic Material Characterization System** J.-i. Kushibiki[1], M. Arakawa[1], **K. Otsu[2]**; *[1]Tohoku Univ., Japan, [2]Tohoku Univ., Japan.*	**6F-3 Acoustic trapping of small particles on the surface of a vibrating rod** **Yanyan Liu**, Junhui Hu; *Nanyang Technological University, Singapore.*
2:15 pm	**1F-4 3D Strain Imaging Method Dedicated to Large Deformations and Freehand Scanning** **Jean-François Deprez**[1], Elisabeth Brusseau[2], Olivier Basset[1]; *[1]Creatis, Lyon, France, [2]Creatis - CNRS, Lyon, France, [3]Creatis - Université Lyon 1, Lyon, France.*	**2F-4 Efficacy of Sonophotodynamic therapy (SPDT) mediated to Liposomal Zinc phthalocyanine on a colon carcinoma tumor model** **A. Sazgarnia**[1], M. H. Bahreyni-Toosi[1], M. Bakhshizadeh-Feyz Abadi[2], A. R. Khooie[2], H. Esmaily[2]; *[1]Mashhad Univ. of Medical Scien, Iran, [2]MUMS, Iran.*	**3F-4 Picosecond Iltrasonics in a Single Biological Cell** **Clement Rossignol**, Bertrand Audoin, Mathieu Ducousso; *Laboratoire Mecanique Physique, Universite Bordeaux - CNRS, France.*	**4F-3 Suppression of Transverse Mode Spurious of SAW Resonator on an SiO_2/Al/$LiNbO_3$ Structure for Wideband CDMA Applications** **H. Nakamura**[1], H. Nakanishi[1], T. Tsurunari[1], K. Matsunami[1], Y. Iwasaki[1], K.-y. Hashimoto[2], M. Yamaguchi[2]; *[1]Panasonic Electronic Devices Co., Ltd., Japan, [2]Chiba University, Japan.*	**5F-4 Scanning acoustic microscopy an application for evaulating varnish layer conditions non-destructively** **Sebastian Brand**[1], Peter Czuratis[2], Kay Raum[1]; *[1]University of Halle, Germany, [2]SAM TEC GmbH, Germany.*	**6F-4 FE Analysis and Experimental Characterization of a High Torque Travelling Wave Ultrasonic Motor** **Antonio Iula**; *University of Basilicata, Potenza, Italy.*
2:30 pm	**1F-5 Deconvolution and elastography based on 3D ultrasound** **Richard Prager**, Andrew Gee, Graham Treece, Joel Lindop, Nick Kingsbury; *University of Cambridge, Department of Engineering, United Kingdom.*	**2F-5 Noncavitational Nonporative Ultrasound Elicits Marked In Vivo Augmentation of Tumor Drug Delivery with Targeted Perfluorocarbon Nanoparticles** S. Baldwin, N. Soman, G. Lanza, **S. Wickline**; *Washington Univ. in St. Louis, School of Medicine, USA.*	**3F-5 Dynamic measurements of the generation and trapping of bubbles by a self-focused femtosecond laser beam** K. Yang[1], Y. Zhou[1], Z. Fan[1], J. Ye[2], **C. Deng[1]**; *[1]Univ. of Mich., Biomed. Eng., USA, [2]Univ. of Mich., Center for ultrafast optical sciences, USA.*	**4F-4 K-Band Ladder Filters Employing Air-Gap type Thin Film Bulk Acoustic Resonators** **Tsuyoshi Yokoyama**, Motoaki Hara, Masanori Ueda, Yoshio Satoh; *Fujitsu Limited, Japan.*	**5F-5 Ultrasonic Phased Array Device for Acoustic Imaging in Air** **Sevan Harput**, Ayhan Bozkurt, Feysel Yalcin Yamaner; *Sabanci University, Acoustic Group, Istanbul, Turkey.*	**6F-5 Dielectrophoresis Driven by Acoustic Pulses on Piezoelectric Substrates** Mikhail S. Berezin, **Vladimir G. Mozhaev**, Anna V. Zyryanova; *Moscow State University, Faculty of Physics, Moscow, Russian Federation.*
2:45 pm		**2F-6 Intra-Vascular Ultrasound (IVUS) Delivery of DNA Via Microbubble Carriers to an Injured Artery In vivo** **L. C. Phillips**[1], A. L. Klibanov[1], D. K. Bowles[2], B. R. Wamhoff[1], J. A. Hossack[1]; *[1]Univ. of Virginia, USA, [2]University of Missouri, USA.*	**3F-6 Selective Detection of Cancer using Multi-wavelength Photoacoustic Imaging and Bioconjugated Gold Nanoparticles** **S. Mallidi**, T. Larson, K. Sokolov, S. Emelianov; *University of Texas at Austin, Department of Biomedical Engineering, USA.*	**4F-5 BAW PCS-Duplexer Chipset and Duplexer Applications** **Gernot Fattinger**[1], Alexandre Volatier[1], Robert Aigner[2], Fabien Dumont[1]; *[1]TriQuint Semiconductor, BAW R&D, Apopka, FL, USA, [2]TriQuint Semiconductor, Acoustic R&D, Apopka, FL, USA.*	**5F-6 Application of chaotic cavities to localizednonlinearity imaging with time reversal** **Bou Matar Olivier**, Li YiFeng, Preobrazhensky Vladimir, Pernod Philippe; *IEMN, France.*	**6F-6 Structure design method of bar-structure linear ultrasonic motor** **Zhiyuan Yao**, Dong Yang, Xin Wu, Chunsheng Zhao; *Nanjing University of Aeronautics and Astronautics, China.*

TUESDAY ORAL

TUESDAY ORAL

4:30 pm – 6:00 pm — Oral --- Tuesday, November 4, 2008

	Session 1G. Visco-elasticity	Session 2G. Therapeutic Ultrasound	Session 3G. High Frequency Transducers	Session 4G. Acoustic MEMS Devices	Session 5G. NDE Phased Arrays	Session 6G. Material Properties II - Crystals & Composites
	Chair: **Mickael Tanter** *Laboratoire Ondes et Acoustique, ESPCI, France*	*Chair:* **Kullervo Hynynen** *University of Toronto, Canada*	*Chair:* **Jian Yuan** *Boston Scientific, USA*	*Chair:* **Daniel Hauden** *FEMTO-ST Besancon, France*	*Chair:* **Robert Addison** *Rockwell Science Center, USA*	*Chair:* **Bikash Sinha** *Schlumberger Inc., USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
4:30 pm	*1G-1* **Dynamic Micro-Elastography (DME) applied to viscoelastic characterization of mimicking carotid arteries** **Cedric Schmitt**, Anis Hadj Henni, Guy Cloutier; *Laboratory of Biorheology and Medical Ultrasonics, Montreal, Quebec, Canada.*	*2G-1* **Optimum Protocols in the Design of 2-D Spherical-Sectioned Phased-Array for 3-D Focused Ultrasound Surgery** **Mingzhu Lu**, Mingxi Wan, Xiaodong Wang; *Xi'an Jiaotong University, The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an, Shanxi, China.*	*3G-1* **Stiffness controlled SU8-based nanocomposites: application for matching layer for 1 GHz ultrasonic transducer** **S.-X. Wang**[1], J. Carlier[1], A. Ndieguene[1], P. Campistron[1], D. Callens[1], B. Nongaillard[1], X.-Z. Zhao[2]; *[1]Institut d'Electronique de Microélectronique et de Nanotechnologies, France, [2]Wuhan University, China.*	*4G-1* **A Review of the Recent Development of MEMS and Crystal Oscillators and Their Impacts on the Frequency Control Products Industry** **C.S. Lam;** *Integrated Device Technology, Inc., Andover, MA, USA.*	*5G-1* **Reduction of Grating Lobes in SAFT Images** **C. J. Martín**[1], O. Martínez[1], A. Octavio[2], G. Godoy[1], L. Gómez-Ullate[1]; *[1]IAI-CSIC, Department of Systems, Arganda del Rey, Spain, [2]IA-CSIC, Department of Signals, Systems and Ultrasonic Technologies, Spain, [1]University of Jaén, Department of Electronic Engineering, Spain.*	*6G-1* **Study on Acoustical Physical Constants of ZnO Single Crystal Using the Ultrasonic Microspectroscopy Technology** Tomoya Tanaka, **Yuji Ohashi,** Mototaka Arakawa, Jun-ichi Kushibiki, Noboru Sakagami; *Tohoku University, Graduate School of Engineering, Sendai, Miyagi, Japan.*
4:45 pm	*1G-2* **Investigating the Effects of Viscosity on Focused, Impulsive, Acoustic Radiation Force Induced Shear Wave Morphology** **Michael Wang**[1], Mark Palmeri[1], Maritza Hobson[2], Kathryn Nightingale[1]; *[1]Duke University, Biomedical Engineering, Durham, NC, USA, [2]University of Wisconsin-Madison, Department of Medical Physics, USA.*	*2G-2* **Thermal Efficiency in Sonotherapy Array Design** **Douglas N. Stephens**, Dustin E. Kruse, Chun-Yen Lai, Arif S. Ergun, Stephen Barnes, Katherine W. Ferrara; *[1]UC Davis, Dept. of Biomedical Engineering, USA, [2]Siemens Corporate Research, Inc., USA.*	*3G-2* **60 MHz PC-MUT for Intravascular Ultrasound (IVUS) Imaging** **Jian Yuan**[1], Sorah Rhee[1], Xiaoning Jiang[2]; *[1]Boston Scientific Corporation, Fremont, California, USA, [2]TRS Technologies Inc., State College, Pennsylvania, USA.*		*5G-2* **Influence of SAFT Activation Sequence in 2D Arrays Performance** **Carlos Martín**[1], Oscar Martínez[1], Alberto Octavio[2], Francisco Montero[2], Luis Gómez-Ullate[1]; *[1]IAI-CSIC, Department of Systems, Arganda del Rey, Madrid, Spain, [2]IA-CSIC, Department of Signals, Systems and Ultrasonic Technologies, Spain.*	*6G-2* **ZnO piezoelectric thin film growth and characterization** Hongming Sun, **Hang Guo;** *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, China.*

5:00 pm	**1G-3 Skin viscoelasticity with surface wave method** **Xiaoming Zhang**[1], Randall Kinnick[1], Mark Pittelkow[2], James Greenleaf[2]; *[1]Mayo Clinic, Physiology and Biomedical Engineering, Rochester, MN, USA, [2]Mayo Clinic, Dermatology, Rochester, MN, USA.*	**2G-3 Modulating tumor blood flow with pulsed low intensity ultrasound and microbubbles** **David Goertz**[1], Raffi Karshafian[1], Kullervo Hynynen[2]; *[1]Sunnybrook Health Sciences Centre, Imaging Research, Toronto, Ontario, Canada, [2]Sunnybrook Health Sciences Centre, Canada.*	**3G-3 Development of a 30 MHz 1-3 Composite Array for Medical Imaging** **Jonathan Cannata**, Jay Williams, Chang-Hong Hu, K. Kirk Shung; *University of Southern California, Biomedical Engineering, Los Angeles, CA, USA.*	**4G-2 Internal Phase Inversion Narrow Bandwidth MEMS Filter** **Jize Yan**[1], Ashwin Seshia[1], Kim Le Phan[2], Joost Van Beek[2]; *[1]University of Cambridge, United Kingdom, [2]NXP Semiconductors, Netherlands.*	**5G-3 Estimation of Ultuasonic Location of PD in Power Transformer Based on Modified Multiple Classification Method** Q. Xie[1], N. Wang[1], **Y. Li**[2], F. Lv[1], X. Xiang[1]; *[1]North China Electronic Power Univ., China, [2]North China Electronic Power Univ., China.*	**6G-3 Elastic, acoustical and nonlinearity properties of beryllium chalcogenides** Rajendra Singh, **Rishi Singh,** Manish Singh, Sujeet Chaurasia; *Banaras Hindu Univ. varanasi, India, Physics, Varanasi, Uttar pradesh, India.*
5:15 pm	**1G-4 Quantification of Liver Stiffness and Viscosity with SDUV: *In Vivo* Animal Study** **S. Chen**[1], M. Urban[1], Y. Zheng[2], A. Yao[2], J. Greenleaf[1]; *[1]Mayo Clinic, USA, [2]St. Cloud State University, Department of Electrical and Computer Engineering, USA.*	**2G-4 A Prototype Design of a Low-Frequency Hemispherical Ultrasound Phased-Array System for Transcranial Blood-Brain Barrier (BBB) Disruption** **H.-L. Liu**, H.-W. Chen, Z.-H. Kuo, I-H. Chen, W.-Ch. Huang; *Chang Gung Univ., Tao Yuan, Taiwan.*	**3G-4 High-frequency (>100MHz) Piezoelectric PZT Film Micromachined Ultrasonic Arrays** **D. Wu**[1], Q. Zhou[1], C. Liu[2], F. Djuth[2], K K. Shung[1]; *[1]Univ. of Southern California, USA, [2]Geospace Research, Inc, USA.*	**4G-3 A Layered SAW Device Using Phononic-Crystal Reflective Gratings** Tsung-Tsong Wu, Wei-Shan Wang, **Jia-Hong Sun**; *National Taiwan University, Institute of Applied Mechanics, Taipei, Taiwan.*	**5G-4 Non-Crosstalk Real-Time Ultrasonic Range System with Optimized Chaotic Pulse Position-Width Modulation Excitation** **Zhen-Jing Yao**, Qing-Hao Meng, Shao-Ying Lan, Gen-Wang Li; *Tianjin University, Department of Automation, Tianjin, China.*	**6G-4 Investigations of molecular interactions in polymeric solutions using acoustical characterization techniques** Rajendra Singh, **Manish Singh,** Rishi Singh, Sujeet Chaurasia; *Banaras Hindu Univ. varanasi, India, Physics, Varanasi, Uttar pradesh, India.*
5:30 pm	**1G-5 Measuring Viscoelastic Properties with Ultrasonically Generated Microbubbles** **Rei Asami**, Ken-ichi Kawabata; *Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan.*	**2G-5 Microbubble dependence and permeability assessment of the ultrasound-induced blood-brain barrier opening in vivo** **Elisa Konofagou**, James Choi, Jameel Feshitan, Ann Lee, Mark Borden; *Columbia University, New York, NY, USA.*	**3G-5 High-Frequency (60MHz - 100MHz) Medical Ultrasound Transducer Arrays Produced by Micromachining Bulk PZT Materials** **C. Liu**[1], D. Wu[2], Q. Zhou[2], F. Djuth[1], K. Shung[2]; *[1]Geospace Research, Inc., USA, [2]Univ. of Southern California, USA.*	**4G-4 Fully-Differential Mechanically-coupled PZT-on-Silicon Filters** **H. Chandrahalim**[1], S. Bhave[1], R. Polcawich[2], J. Pulskamp[2], D. Judy[2], R. Kaul[2], M. Dubey[2]; *[1]Cornell Univ., USA, [2]US Army Research Laboratory, Adelphi, MD, USA.*	**5G-5 Improving the Bandwidth of Air Coupled Capacitive Ultrasonic Transducers Using Selective Networks** **S. M. Sweeney**, WMD Wright; *National University of Ireland, Electrical and Electronic Engineering Dept, Mallow, Cork, Ireland.*	**6G-5 Determination of the Absolute Orientation of LGX Crystals using X-ray Diffraction** **B. Sturtevant**[1], R. Lad[1], M. P. da Cunha[2]; *[1]Univ. of Maine, Physics, Orono, Maine, USA, [2]Univ. of Maine, Electrical and Computer Engineering, Orono, Maine, USA.*
5:45 pm	**1G-6 A Harmonic Motion Imaging-based technique for non-contact mapping and estimating regional viscoelastic properties** Caroline Maleke, Jonathan Vappou, **Elisa Konofagou**; *Columbia University, Biomedical Engineering, New York, NY, USA.*	**2G-6 Feasibility of Transient Image-guided Blood-Spinal Cord Barrier Disruption** Rajiv Chopra, Jeffrey Wachsmuth, **Kullervo Hynynen**; *Sunnybrook Health Sciences Centre, Canada.*	**3G-6 High Frequency Transducer with Integrated Electronics** **Susan Trolier-McKinstry**; *Pennsylvania State University, Materials Science and Engineering, University Park, PA, USA.*	**4G-5 Piezoelectrically transduced Single-Crystal-Silicon Plate Resonators** **A. Jaakkola**[1], P. Rosenberg[1], O. Holmgren[2], K. Kokkonen[2], J. Dekker[1], A. Nurmela[1], T. Pensala[1], T. Riekkinen[1], T. Mattila[1], A. Alastalo[1]; *[1]VTT technical research center of Finland, Finland, [2]Helsinki Univ. of Tech., Finland.*	**5G-6 Application of a pseudo-3D modeling to Lamb waves generation by surface-bonded piezoelectric transducers.** **Jamal Assaad**, Emmanuel Moulin, Najib Abou Layla, Mustapha Baouahi, Sébastien Grondel; *UVHC-IEMN, OAE, Valenciennes, France.*	**6G-6 Viscosity Tensor Components of the Langatate and Langasite** **S. Fedor**[1], G. Mansfeld[2], S. Alekseev[2], N. Polzikova[2], I. Kotelyanskii[2]; *[1]Moscow Institute of Physics and Technology, Russian Federation, [2]Institute of Radioengeneering and Electronics RAS, Russian Federation*

3:00 pm – 4:30 pm | POSTER --- Tuesday, November 4, 2008 | 2nd and 3rd Floor

Session: P2A. Blood Flow

Chair: **Jorgen Arendt Jensen**
Technical University of Denmark, Denmark

P2A023-01 Doppler ultrasound and numerical analysis for the assessment of hemodynamic disturbances in ulcerated carotid arteries

E. Wong[1], J. Milner[1], M. Thorne[1], H. Nikolov[1], D. Steinman[2], R. Rankin[3], T. Poepping[4], D. Holdsworth[1]; *[1]Robarts Research Inst., Canada, [2]Univ. of Toronto, Canada, [3]Univ. of Western Ontario, Canada, [4]Univ. of Western Ontario, Canada.*

P2A024-02 Ultrasonic Doppler Measurements of Blood Flow Velocity of Rabbit Retinal Vessels with High-Frequency Angled Needle Transducer

R. Chen[1], D.-Guk Paeng[2], N. Matsuoka[3], H. Ameri[3], Q. Zhou[1], M. Humayun[3], K. Kirk Shung[1]; *[1]University of Southern California, Department of Biomedical Engineering, USA, [2]Cheju National University, Marine Industrial Engineering, Korea, Republic of, [3]University of Southern California, Doheny Eye Institute, USA.*

P2A025-03 An Improved Method for Estimating the Blood Flow Velocity Vector Using Aperture Domain Data

Angning Yu, Hu Peng; *USTC, Dept. 23, Hefei, Anhui, China.*

Session: P2B. Improvements in Contrast Imaging

Chair: **Piero Tortoli**
Università degli Studi di Firenze, Italy

P2B030-01 Microbubble Detection by Dual-High-Frequency Ultrasound Excitation

Shin-Yuan Su[1], Che-Chou Shen[2], Chih-Kuang Yeh[1]; *[1]National Tsing Hua University, Department of Biomedical Engineering and Environmental Sciences, Hsinchu, Taiwan, [2]National Taiwan University of Science and Technology, Department of Electrical Engineering, Taipei, Taiwan.*

P2B031-02 Transmit phase tuning for wideband harmonic detection of contrast agents

Che-Chou Shen, Yi-Chun Hsieh; *National Taiwan University of Science and Technology, Department of Electrical Engineering, Taipei, Taiwan.*

P2B032-03 Radial-Modulation Chirp Imaging for High-Resolution Contrast Detection

Meng-Lin Li[1], Yu-Chen Kuo[2], Chih-Kuang Yeh[2]; *[1]National Tsing Hua University, Department of Electrical Engineering, Hsinchu, Taiwan, [2]National Tsing Hua University, Department of Biomedical Engineering and Environmental Sciences, Hsinchu, Taiwan.*

P2B037-08 Molecular Imaging of Thrombus and Ultrasound-Assisted Thrombolysis Using Targeted Ultrasound Contrast Agents

Jia-Ling Ruan, Po-Wen Cheng, Szu-Chia Chen, Yueh-Hsun Chuang, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*

P2B038-09 Monodisperse Microbubble Populations via Microfluidic Chip Flow-Focusing

Yaoyao Cui, Paul Campbell; *University of Dundee, CICaSS Group, Dundee, Scotland, United Kingdom.*

P2B039-10 Ultrasound Contrast Imaging Based on a Novel Algorithm Combined Pulse Inversion with Wavelet Transform

Xiaoyan Zhao, Minxi Wan, Hui Zhong, Liang Shen; *School of Life Science and Technology, Xi'an Jiaotong University, The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an, Shaanxi, China.*

P2B040-11 Inflow-Time Mapping of Ultrasonic Contrast Agents for Differential Diagnosis of Liver Tumor

H. Yoshikawa[1], T. Azuma[1], K. Kawabata[1], K. Sasaki[2], S.-i. Umemura[3]; *[1]HITACHI, Ltd., Central Research Laboratory, Tokyo, Japan, [2]Tokyo Univ. of Agriculture and Technology, Tokyo, Japan, [3]Tohoku Univ., Sendai, Japan.*

P2C044-04 Comparison of the acoustic response of attached and unattached BiSphere™ microbubbles

Mairead Butler[1], David Thomas[1], Stephen Pye[2], Carmel Moran[1], W Norman McDicken[1], Vassilis Sboros[1]; *[1]University of Edinburgh, Medical Physics, Edinburgh, United Kingdom, [2]NHS Lothian, Medical Physics, , N/A, United Kingdom.*

P2C045-05 An experimental setup for the determination of the inertial cavitation threshold of ultrasound contrast agents

Michal Mleczko, Georg Schmitz; *Ruhr-Universität Bochum, Institute of Medical Engineering, Bochum, Germany.*

P2C046-06 In-vivo Perfusion Quantification by Contrast Ultrasound:Validation of the Use of Linearized Video Data vs. Raw RF Data

Nicolas Rognin, Peter Frinking, Tristan Messager, Marcel Arditi; *Bracco Research SA, Plan-les-Ouates, Geneva, Switzerland.*

P2C047-07 Applying Real-time Noninvasive Pressure Estimation Obtained from Subharmonic Contrast Microbubble Signals

Lauren Leodore[1], Flemming Forsberg[2]; *[1]Thomas Jefferson University, USA, [2]Thomas Jefferson University, Radiology, USA.*

P2D051-04 Ultrasonic Microprobe based in vitro Direct-Mechanical stimulation of Canine Left-Ventricular Tissue

A. Ramkumar[1], R. F. Gilmour Jr.[2], A. Lal[3]; *[1]Cornell Univ., Biomedical Engineering, Ithaca, New York, USA, [2]Cornell Univ., Biomedical Sciences, Ithaca, New York, USA, [3]Electrical Engineering, Cornell Univ., Ithaca, New York, USA.*

P2D052-05 Investigation on the Parametric Excitation of Shear Waves as a Factor Involved in Ultrasound-Induced Changes in Biological Tissues

M. Mironov[1], P. Pyatakov[1], I. Konopatskaya[1], G. Clement[2], **N. Vykhodtseva**[2]; *[1]Andreev Acoustics Instite, Russian Federation, [2]Harvard Medical School, Brigham&Women's Hospital, USA.*

P2D053-06 High-Intensity Focused-Ultrasound Modifications on the Conduction Properties of Toad's Sciatic Nerve

Yu Wen-li, Zhao Nan, Shao Yuan, Wang Su-pin, **Wan Ming-xi**; *The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Department of Biomedical Engineering, Xi'an Jiaotong Unive., Xi'an, Shann'xi Province, China.*

P2D054-07 A dual sensing fibre-optic hydrophone for the simultaneous measurement of acoustic pressure and temperature

P. Morris[1], J. Collin[2], C. Coussios[2], A. Hurrell[3], P. Beard[1]; *[1]UCL, London, United Kingdom, [2]Univ. of Oxford, United Kingdom, [3]Precision Acoustics Ltd, Dorchester, Dorset, United Kingdom.*

P2A026-04 **In-vivo validation of fast spectral velocity estimation techniques – preliminary results**

Kristoffer L. Hansen[1], Fredrik Gran[2], Mads M. Pedersen[1], Jørgen A. Jensen[3], Michael B. Nielsen[1]; [1]*University Hospital of Copenhagen, Denmark,* [2]*GN Resound, Denmark,* [3]*Technical University of Denmark, Denmark.*

P2A027-05 **Transverse Correlation: an Efficient Transverse Flow Estimator - Initial Results**

Lasse Henze[1], Iben Kraglund Holfort[1], Jacob Kortbek[2], Jørgen Arendt Jensen[1]; [1]*Center for Fast Ultrasound Imaging DTU Elektro, Denmark,* [2]*B-K Medical, Denmark.*

P2A028-06 **A comparison of two-dimensional flow estimation techniques based on computational fluid dynamics: speckle tracking versus vector-Doppler**

Abigail Swillens[1], Lasse Lovstakken[2], Hans Torp[2], Patrick Segers[1]; [1]*Ghent Univ., Institute Biomedical Technology, Belgium,* [2]*NTNU Trondheim, Institute of Circulation and Medical Imaging, Norway.*

P2A029-07 **Aiding Vascular Trauma Detection in Human Upper Extremities with Image-Based Models of Blood Flow**

Aaron Wang[1], David Liang[2], Charles Taylor[3]; [1]*Stanford University, Bioengineering, USA,* [2]*Stanford University, EE/Cardiovascular Medicine, USA,* [3]*Stanford University, ME/Bioengineering, USA.*

P2B033-04 **Contrast Resonance Imaging with Microbubble Resonance Enhancement and Suppression**

William Shi[1], Christopher Hall[1], Patrick Rafter[2]; [1]*Philips Research North America, USA,* [2]*Philips Healthcare, USA.*

P2B034-05 **Singular-Value-Decomposition Investigation of the Sub-harmonic Response of Contrast Agents Excited at 40 MHz**

Jonathan Mamou, Sarayu Ramachandran, Jeffrey A. Ketterling; *Riverside Research Institute, F. L. Lizzi Center for Biomedical Engineering, New York, NY, USA.*

P2B035-06 **Ultrasonic contrast detection with third harmonic transmit phasing**

Che-Chou Shen, Hong-Wei Wang; *National Taiwan University of Science and Technology, Department of Electrical Engineering, Taipei, Taiwan.*

P2B036-07 **Image Processing Algorithms for Cumulative Maximum Intensity Subharmonic Ultrasound Imaging: A Comparative Study in the Breast**

J. Dave[1], **F. Forsberg**[2], D. Merton[3], S. Fernandes[1], T. Fox[3], L. Leodore[1], A. Hall[4]; [1]*Thomas Jefferson Univ. and Drexel Univ., USA,* [2]*Thomas Jefferson Univ., USA,* [3]*Thomas Jefferson Univ., USA,* [4]*GE Healthcare, USA.*

Session: P2C. Contrast Agents: Modeling and Characterization

Chair: **Jonathan Mamou**
Riverside Research Institute, USA.

P2C041-01 **Monitoring and Modeling of Microbubble Behavior during Ultrasound Mediated Transfection of Cell Monolayers**

Karin Hensel[1], Monica Siepmann[1], Abdelouahid Maghnouj[2], Stephan Hahn[2], Georg Schmitz[1]; [1]*Ruhr-University Bochum, Institute of Medical Engineering, Germany,* [2]*Ruhr-University Bochum, Molecular GI-Oncology, Germany.*

P2C042-02 **Characterization of Bubble Liposomes by Measurements of Ultrasound Attenuation: Effects of Shell Materials**

Katsuji Sakaguchi[1], Nobuki Kudo[1], Ryo Suzuki[2], Kazuo Maruyama[2], Katsuyuki Yamamoto[1]; [1]*Hokkaido Univ., Graduate school of Information Science and Technology, Japan,* [2]*Teikyo Univ., School of Pharmaceutical Sciences, Japan.*

P2C043-03 **Ultrasound Induced Deflation: a method to study the behavior of single bubbles with varying diameter**

Francesco Guidi[1], Riccardo Mori[1], Hendrik Vos[2], Nico de Jong[2], Piero Tortoli[1]; [1]*University of Florence, Electronic and Telecommunication, Florence, FI, Italy,* [2]*Erasmus University, Biomedical Engineering, Rotterdam, Netherlands.*

Session: P2D. Bioeffects

Chair: **Chris Hall**
Philips Research North America, USA

P2D048-01 **Investigation on the Usefulness of the Infrared Image for Measuring the Temperature Developed by Transducer**

Satoshi Yamazaki; *Toshiba Medical Systems Corporation, Ultrasound Systems Development Department, Otawara, Tochigi, Japan.*

P2D049-02 **Qualitative and quantitative analysis of the molecular delivery through the ultrasound-enhanced blood-brain barrier opening in the murine brain**

Shougang Wang, James Choi, Yao-Sheng Tun, Barclay Morrison, Elisa Konofagou; *Columbia University, Department of Biomedical Engineering, USA.*

P2D050-03 **Safety radius for algae eradication at 200 kHz - 2.5 MHz**

Michiel Postema[1], Antje Schommartz[2]; [1]*The University of Hull, Department of Engineering, Kingston upon Hull, East Riding of Yorkshire, United Kingdom,* [2]*The University of Hull, Department of Engineering, United Kingdom.*

P2D055-08 **Simulated and experimental analysis of PVDF membrane hydrophone low-frequency response for accurate measurements of lithotripsy shockwaves**

Adam Maxwell[1], Oleg Sapozhnikov[2], Yuri Pishchalnikov[3], Michael Bailey[2]; [1]*Univ. of Michigan, USA,* [2]*Univ. of Washington, USA,* [3]*Indiana Univ. School of Medicine, USA.*

P2D056-09 **Observation of HIFU shock waveforms and corresponding bioeffects in tissue phantoms and tissue**

Vera Khokhlova[1], Michael Canney[1], Olga Bessonova[2], Michael Bailey[1], Lawrence Crum[1]; [1]*University of Washington, USA,* [2]*Moscow State University, Russian Federation.*

P2D057-10 **Role of cytoplasmic calcium and ion channels during insonication of cancer cells with ultrasound contrast agents**

Sergei Sokolovski[1], Paul Campbell[2]; [1]*University of Dundee, United Kingdom,* [2]*Dundee University, Dundee, Scotland, United Kingdom.*

P2D058-11 **The bioeffects of nanoparticles using ultrasound stimulation in endothelial cell**

Po-Hsiang Hsu; *Institute of Biomedical Engineering, National Yang-Ming University, Taipei, Taiwan.*

3:00 pm – 4:30 pm | POSTER --- Tuesday, November 4, 2008 | 2nd and 3rd Floor

Session: P2E. High Frequency Techniques

Chair: **Kirk Shung**
University of Sothern California, CA, USA

P2E059-01 Comparative Study between Ultrasound Biomicroscopy and Histopathology of Diversion Colitis on Rats

R. Pacheco[1], K. Alves[2], C. Espósito[1], M. Soldan[3], L. Quintella[4], V. Chagas[5], A. Schanaider[1], **J. Machado**[5]; *[1]Federal Univ. of Rio de Janeiro, Brazil, [2]COPPE/Federal Univ. of Rio de Janeiro, Brazil, [3]Clementino Fraga Filho Univ. Hospital - Federal Univ. of Rio de Janeiro, Brazil, [4]Clementino Fraga Filho Univ. Hospital - Federal Univ. of Rio de Janeiro, Brazil, [5]Federal Univ. of Rio de Janeiro, Brazil.*

P2E060-02 Characterising the performance of high resolution ultrasound scanners for small animal work.

C. Moran[1], B. Ellis[2], Sean Smart[3], S. Pye[2]; *[1]Univ. of Edinburgh, United Kingdom, [2]Edinburgh Royal Infirmary, United Kingdom, [3]Department of Radiation Oncology and Biology, Oxford, United Kingdom.*

P2E061-03 Development of diagnostic imaging system for regional lymph node micrometastasis with high-frequency ultrasound

N. Tomita[1], S. Horie[1], F. Oosawa[2], C. Rui[3], Y. Watanabe[1], K. Ohki[2], H. Morikawa[2], M. Fukumoto[3], S. Mori[2], T. Kodama[1]; *[1]Tohoku Univ., Japan, [2]Tohoku Univ. Hospital, Japan, [3]Tohoku Univ., Japan.*

Session: P2F. 3D / Cardiac Imaging

Chair: **Hiroshi Kanai**
Tohoku University, Japan

P2F066-01 3D Speckle Tracking in Simulated Ultrasound Data of the Left Ventricle

J. Crosby[1], S. Langeland[2], E. W. Remme[3], H. Torp[1]; *[1]Norwegian Univ. of Science and Technology, Dept. of Circulation and Medical Imaging, Norway, [2]GE Vingmed Ultrasound AS, Horten, Norway, [3]Rikshospitalet Unive. Hospital, Institute for Surgical Research, Oslo, Norway.*

P2F067-02 Cardiac Output Estimation in Non-Standard 3D Echocardiographic Images

M. Nillesen[1], R. Lopata[1], W. de Boode[2], I. Gerrits[1], H. Huisman[3], L. Kapusta[4], H. Thijssen[1], **C. de Korte**[1]; *[1]Radboud Univ. Nijmegen Medical Centre, Netherlands, [2]Radboud Univ. Nijmegen Medical Centre, Netherlands, [3]Radboud Unive. Nijmegen Medical Centre, Netherlands, [4]Radboud Univ. Nijmegen Medical Centre, Netherlands.*

P2F068-03 Coupled segmentation of endo- and epi-cardial borders in 3D echocardiography

F. Orderud[2], G. Kiss[1], H. G. Torp[3]; *[1]Norwegian Univ. of Science and Technology, Norway, [2]Norwegian Univ. of Science and Technology, Norway, [3]Norwegian Univ. of Science and Technology, Norway.*

Session: P2G. Medical Imaging Transducers

Chair: **K Shung**
University of Sothern California, CA, USA

P2G072-01 Evaluation of Inline Transmitter/Receiver System for Intravascular Ultrasound Imaging Using $Pb(Zn_{1/3}Nb_{2/3})O_3$–$PbTiO_3$ Single Crystal and Polyvinylidene Fluoride

M. Tanabe[1], K. Okubo[1], N. Tagawa[1], T. Moriya[2]; *[1]Tokyo Metropolitan Univ., Japan, [2]Prof. Emeritus of Tokyo Metropolitan Univ., Japan.*

P2G073-02 Novel biomedical imaging that combines intravascular ultrasound (IVUS) and optical coherence tomography (OCT)

H.-C. Yang[1], C. Hu[1], Q. Zhou[1], D. Wu[1], J. Cannata[1], J. Su[2], J.-C. Yin[2], Z. Chen[2], K. Kirk Shung[1]; *[1]Univ. of Southern California, Biomedic Engineering, Los Angeles, CA, USA, [2]Univ. of California, Irvine, Biomedical Engineering, Irvine, CA, USA.*

P2G074-03 A 100-MHz 32-array transducer using lithographically-made electrodes and vapor-deposited polyurea film

Toshiki Takayasu[1], Marie Nakazawa[2], Kentaro Nakamura[3], Sadayuki Ueha[3]; *[1]Tokyo Institute of Technology, Precision and Intelligence Laboratory, Yokohama, Kanagawa, Japan, [2]Hitachi Ltd, Japan, [3]Tokyo Institute of Technology, Japan.*

Session: P2H. Nonlinear Propagation

Chair: **Valery Proklov**
IRE RAS, Russia

P2H079-01 Acoustic radiation force on objects and power measurements of focusing source (HIFU)

Z. W. Qian[1], **Z. Zhu**[2], S. Ye[1], W. Jiang[1], H. Zhu[1], J. Yu[1], Y. Yuan[1], Y. Yang[1]; *[1]Inst. of Acoustics, CAS, and Beijing YU, China, [2]Inst. of Acoustics, CAS, Beijing, China, [3]Inst. of Acoustics, CAS, Beijing, China.*

P2H080-02 Stress Mapping Using Nonlinear Ultrasound

Dan Xiang[1], Guangfan Zhang[1], Fei Yan[1], John Welter[2]; *[1]IAI, USA, [2]WP AFB, USA.*

P2H081-03 Using SFAI Method for Spherical Resonator Characteristics Determination

Rudolf Bálek, **Ilona Ali Bláhová,** Milan Cervenka, Jaroslav Plocek; *Faculty of Electrical Engineering, Czech Technical University in Prague, Department of Physics, Prague, Czech Republic.*

Session: P2I. Ultrasonic Wave Propagation II

Chair: **Ji Wang**
Ningbo University, Ningbo, China

P2I085-01 Development of General Solution of Cumulative Second Harmonic by Lamb Wave Propagation

Mingxi Deng; *Logistics Engineering University, Department of Physics, Chongqing, China.*

P2I086-02 Ultrasonic wave propagation in layered piezoelectric semiconductor plates

Bernard Collet; *Institut Jean Le Rond d'Alembert, CNRS-UMR-7190,case162, Tour 65, Université Pierre et Marie Curie, (Paris 6), Paris, Paris Cedex 05, France.*

P2I087-03 Influence of the external electric field on propagation of Lamb waves in thin piezoelectric sheets

Sergey Burkov, Olga Zolotova, **Boris Sorokin**; *Siberian Federal University, Solid State Physics, Krasnoyarsk, Krasnoyarsk region, Russian Federation.*

P2E062-04 Improved high-frequency high frame rate duplex ultrasound linear array imaging system

L. Zhang[1], X. Xu[2], J. T. Yen[1], J. M. Cannata[1], K. K. Shung[1]; [1]*Univ. of Southern California, NIH Transducer Resource Center and Department of Biomedical Engineering, Los Angeles, CA, USA,* [2]*Texas Instruments Inc., Dallas, TX, USA.*

P2E063-05 A Novel Scan Method Using Angled High Frequency Single Element Needle Transducers

J. H. Chang[1], **D.-G. Paeng**[2], R. Chen[1], Mark S. Humayun[3], K. K. Shung[1]; [1]*Univ. of Southern California, Dept. of Biomedical Engineering, USA,* [2]*Cheju National Univ., Korea, Republic of,* [3]*Doheny Eye Institute, Univ. of Southern California, USA.*

P2E064-06 Longitudinal study of adult zebrafish heart regeneration using high frequency echocardiography

L. Sun[1], C.-L. Lien[2], Q. Wu[2], J. H. Chang[3], K. K. Shung[3]; [1]*Hong Kong Polytechnic Univ., Hong Kong SAR, China,* [2]*Childrens Hospital Los Angeles and Univ. of Southern California, USA,* [3]*Univ. of Southern California, Biomedical Engineering, USA.*

P2E065-07 Contrast-Enhanced High-Frequency Ultrasound Imaging of Liver Metastases in Preclinical Models

R. Chen[1], N. Tomita[2], T. baba[3], F. Oosawa[2], Y. Watanabe[2], S. Horie[2], S. Mori[4], M. Fukumoto[3], T. Kodama[2]; [1]*Tohoku Univ., Japan,* [2]*Tohoku Univ., Japan,* [3]*Tohoku Univ., Japan,* [4]*Tohoku Univ., Graduate School of Dentistry, Sendai, Japan.*

P2F069-04 A Four-dimensional Model-based Method for Assessing Cardiac Dyssynchrony in Mice

Yinbo Li, Patrick Helm, Christopher Garson, Brent French, John Hossack; *University of Virginia, Biomedical Engineering, USA.*

P2F070-05 Improving Ejection Fraction Estimation for 2D Ultrasound Using a Computer-generated Cardiac Model

Mahdieh Khoshniat[1], Thomas Szabo[1], Peder Pedersen[2]; [1]*Boston University, Department of Biomedical Engineering, USA,* [2]*Worcester Polytechnic Institute, Department of Electrical and Computer Engineering, USA.*

P2F071-06 Tangential oscillations for motion estimation in echocardiography

Herve Liebgott, Adrian Basarab, Stefan Marincas, Olivier Bernard, Denis Friboulet; *CREATIS-LRMN, France.*

P2G075-04 Fundamental and Third Harmonic Operation of a Medical Phased Array Transducer

Martijn Frijlink, Lasse Løvstakken, Hans Torp; *Norwegian University of Science and Technology (NTNU), Department of Circulation and Medical Imaging, Trondheim, Norway.*

P2G076-05 Fabrication of MEMS Diaphragm Transducer Array Based on Epitaxial PZT Thin Film for 2-D Hydrophone Application

N. Okada[1], K. Higuchi[1], Y. Asakura[1], K. Kobayashi[1], M. Ito[2], M. Takabe[2], M. Otonari[2], I. Kanja[2], D. Akai[2], K. Sawada[2], M. Ishida[2]; [1]*HONDA ELECTRONICS CO., LTD., Japan,* [2]*Toyohashi University of Technology, Japan.*

P2G077-06 Symmetric ReflectorPlates Doubling Transducer Efficiency

Minoru Toda; *Measurement Specialties Inc, USA.*

P2G078-07 Frequency-adjusted Fresnel lens design for a broadband transducer with varying thickness

Sheng-Yung Chen, Jian-Hung Liu, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*

P2H082-04 Nonlinear Planar Forward and Backward Projection

Gregory Clement; *Harvard Medical School, BWH, Radiology, Boston, MA, USA.*

P2H083-05 Computation of Nonlinear Circular Symmetric Fields using X Waves with Operator Splitting

Paul Fox; *University of Southampton, ISVR, United Kingdom.*

P2H084-06 Excitations of Nonlinear Vibration in Plates by High-intensive Ultrasonic Pulses

Zhao-jiang Chen, Kai Zheng, Shu-yi Zhang, Tao Zhang, Feng-mei Zhou; *Lab of Modern Acoustics, Institute of Acoustics, Nanjing University, Nanjing 210093, China.*

P2I088-04 Method of Extracting Unloaded Q Applied Across Different Resonator Technologies

Rich Ruby[1], Reed Parker[2], Dave Feld[2]; [1]*Avago Technologies, Wireless Semiconductor Division, menlo park, CA, USA,* [2]*Avago Technologies, USA.*

P2I089-05 Love Wave Propagating in Functionally Graded Magneto-electro-elastic Material Structure

Jianke Du, Wuchao Chen, Ji Wang; *Ningbo University, China.*

P2I090-06 Sound radiation from a finite FGM cylindrical covered with a compliant layer

Buqing Xu[1], **Shaohua Li**[2]; [1]*Beijing Jiaotong University, School of Mechanical, Electronic and Control Engineering, China,* [2]*Shijiazhuang Railway Institute, China.*

3:00 pm – 4:30 pm | POSTER --- Tuesday, November 4, 2008 | 2nd and 3rd Floor

Session: P2J. Ultrasonic Motor Innovations

Chair: **Oliver Kripfgans**
University of Michigan, MI, USA

P2J091-01 Resonant Frequency Tracking Control of Ultrasonic Motors Using the Maximal Power Point Tracking Method

Markus Flueckiger, José M. Fernandez, Yves Perriard; *Ecole Polytechnique Fédérale de Lausanne - EPFL, Switzerland.*

P2J092-02 A Study on the Metal Tube Type Ultrasonic Motor (MTTUSM)

Jwo Ming Jou, De Chuan Hong; *Cheng Shiu University, Department of Mechanical Engineering, Kaoshiung, Taiwan.*

P2J093-03 Control of Multiple Ultrasonic Motors with Robust Parameter Design

Zhijun Sun, **Huafeng Li,** Weiqing H; *Nanjing University of Aeronautics & Astronautics, China.*

P2J098-08 A wear evaluation of friction materials used for rotary ultrasonic motors

Wei Zheng, Chunsheng Zhao; *Nanjing University of Aeronautics and Astronautics, China.*

P2J099-09 Predictive Control of Piezoelectric Actuators with Friction Drive Mechanism

Seiji Hashimoto; *Gunma University, Dept. of Electronic Eng., Kiryu, Gunma, Japan.*

Session: P2K. Acoustic Wave Sensors

Chair: **Jacqueline Hines**
Applied Sensor Research and Development Corporation, USA

P2K100-01 Development of a new Love wave liquid sensor operating at 2GHz with an integrated micro-flow channel

Philippe Kirsch, **Badreddine Assouar,** Patrick Alnot; *Nancy University - CNRS, France.*

P2K105-06 Simulation of Wireless Passive SAW Sensors Based on FEM/BEM Model

Dongxiang Zhou, Wei Luo, Yi Wang, Jianling Wang, Qiuyun Fu; *Department of Electronic Science and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China.*

P2K106-07 Detection of dangerous gases in disturbing gases using ball SAW gas chromatograph

M. Sakuma[1], T. Tsuji[1], K. Kobari[1], S. Akao[2], K. Noguchi[1], N. Nakaso[3], K. Yamanaka[1]; *[1]Tohoku Univ., JST, CREST, Japan, [2]Toppan Printing Co. Ltd, Tohoku Univ., JST, CREST, Japan, [3]Toppan Printing Co. Ltd, Japan.*

P2K107-08 Development of a Calibration Procedure for Torque and Temperature Sensors Based on SAW Resonators

Victor Kalinin, Raymond Lohr, Arthur Leigh; *Transense Technologies plc, United Kingdom.*

P2K108-09 Assessment of Fatigue Damage in Solid Plates Using Ultrasonic Lamb Wave Spectra

Junfeng Pei, **Mingxi Deng**; *Department of Physics, Logistics Engineering University, Chongqing, China.*

Session: P2L. Acoustical Imaging and Signal Processing

Chair: **Erdal Oruklu**
Illinois Institute of Technology, IL, USA

P2L113-01 A Reconfigurable System for Subband Decomposition Algorithms in Ultrasonic Detection Applications

Erdal Oruklu, Joshua Weber, Jafar Saniie; *Illinois Institute of Technology, Electrical and Computer Engineering, Chicago, IL, USA.*

P2L114-02 A New Lossy Compression Algorithm for Ultra-Sound Signals

Miguel Freitas[1], Henrique dos Santos[1], Marcelo Jimenez[1], Claudio Camerini[2], Jean Pierre von der Weid[1]; *[1]Pontifical Catholic University of Rio de Janeiro, Inspection Technology Research Centre, Rio de Janeiro, RJ, Brazil, [2]Petrobras, CENPES, Brazil.*

P2L115-03 Resolution Improvement of Shallow Underground Imaging Using Super-Magnetstriction Vibrator and Pulse Compression Method

Tsuneyoshi Sugimoto, Hiraku Kawasaki; *Toin University of Yokohama, Electronics and Information Engineering, Yokohama, Japan.*

P2M119-02 Laser-generated Surface acoustic waves for detection of surface-breaking defects based on two-wave mixing interferometers

G. Yan[1], J. Lu[2], Z. Shen[3], X. Ni[3]; *[1]Nanjing Univ. of Posts and Telecommunications, China, [2]Nanjing Univ. of Science and Technology, China, [3]Nanjing Univ. of Science and Technology, China.*

P2M120-03 Ultrasonic and optical characterization of forming colloidal films

T. Karppinen[1], H. Pajari[2], J. Haapalainen[1], I. Kassamakov[3], E. Hæggström[3]; *[1]Department of Physics, University of Helsinki, Helsinki, Finland, [2]Oy Keskuslaboratorio - Centrallaboratorium Ab, Espoo, Finland, [3]Helsinki Institute of Physics, Helsinki, Finland.*

P2M121-04 A Simple Maxwell Based Model in Order to Represent the Frequency-dependent Viscosity Measured by Ultrasound

Ediguer Franco[1], Julio Adamowski[1], Ricardo Higuti[2], **Flávio Buiochi**[1]; *[1]School of Engineering, University of São Paulo, Mecatronics and Mechanical Systems, São Paulo, SP, Brazil, [2]Universidade Estadual Paulista, Ilha Solteira, SP, Brazil.*

P2M122-05 Towards a simple acoustic method to evaluate the nonlinear parameter B/A of fluids

François Vander Meulen, Lionel Haumesser; *Université François Rabelais de Tours, INSERM U930/CNRS FRE 2448, Blois, France.*

P2J094-04 Design and Optimization of a Novel Annular Sector Curvilinear Ultrasonic Motor

Shiyang Li, Ming Yang; *Shanghai Jiaotong University, Department of Instrument Science and Engineering, Shanghai, China.*

P2J095-05 Research on longitudinal and bending hybrid spherical ultrasonic motor with single-vibrator

Xuetao Zhao, Xiuting Wei; *Shandong University of Thchnology, School of Machincal Eenineering, Zibo, Shandong, China.*

P2J096-06 A novel ultrasonic motor driver with independently controllable voltage and frequency

Huafeng Li, Hongzhan Wang; *Precision Driving Lab., China.*

P2J097-07 Experimental Study on Non-contact Linear Motors Driven by Surface Acoustic Waves

Huan-huan Gu, Li-ping Cheng, Shu-yi Zhang, Feng-mei Zhou, Xiu-ji Shui; *Lab of Modern Acoustics, Institute of Acoustics, Nanjing University, Nanjing 210093, China.*

P2K101-02 Carbon dioxide gas sensor using SAW device based on multiwall carbon nanotubes films

Changbao Wen[1], Changchun Zhu[2], Qinghong Liu[2]; *[1]Chang'an University, China, [2]Xi'an Jiaotong University, China.*

P2K102-03 SAW Gas Sensors with Carbon Nanotubes Films

M. Penza[1], R. Rossi[1], M. Alvisi[1], P. Aversa[1], G. Cassano[1], D. Suriano[1], M. Benetti[2], D. Cannatà[2], F. Di Pietrantonio[2], **E. Verona**[2]; *[1]ENEA, Physical Technologies and New Materials, Brindisi, Italy, [2]CNR, Institute of Acoustics "O.M. Corbino", Rome, Italy.*

P2K103-04 wireless polymer-coated love-wave based chemical sensor

Wen Wang, Shitang He; *Institute of Acoustics, Chinese Academy of Sciences, Beijing, China.*

P2K104-05 Experimental Study on Love-wave Sensors with SiO_2/LiTaO$_3$ Structures

Feng-mei Zhou, Zhe Li, Tao Zhang, Wei Lin, Li Fan, Xun Gong, Shu-yi Zhang; *Lab of Modern Acoustics, Institute of Acoustics, Nanjing University, Nanjing 210093, China.*

P2K109-10 A Novel Ultrasonic Sensing Based Human Face Recognition

Zhenwei Miao, Wei Ji, Yong Xu, Jun Yang; *Institute of Acoustics, Chinese Academy of Sciences, China.*

P2K110-11 Rayleigh Wave Propagating in Layered Magneto-electro-elastic Material Structure

Jianke Du, Xiaoyu Cheng, Ji Wang; *Ningbo University, China.*

P2K111-12 New measurement method to characterize piezoelectric SAW substrates at very high temperature

Pascal Nicolay, **Omar Elmazria,** Frederic Sarry, Thierry Aubert, Laurent Bouvot; *Nancy University - CNRS, Laboratoire de Physique des Milieux ionisés et Applications (LPMIA) UMR 7040, Vandoeuvre les Nancy, France.*

P2K112-13 A single transformer-based electrical impedance matching technique with load capacitance cancellation for ultrasound transducers

Sai Chun Tang, Gregory Clement; *Harvard Medical School / Brigham and Women's Hospital, Radiology, Boston, MA, USA.*

P2L116-04 Non-contact Observation of Cultured Cells by Acoustic Impedance Microscope

A. Nakano[1], N. Hozumi[1], M. Nagao[2], S. Yoshida[2], K. Kobayashi[3], S. Yamamoto[4], Y. Saijo[5]; *[1]Aichi Inst. of Tech., Japan, [2]Toyohashi Univ. of Tech., Japan, [3]Honda Electronics Co. Ltd., Japan, [4]Hamamatsu Univ. School of Med., Japan, [5]Tohoku Univ., Japan.*

P2L117-05 A virtual instrument based in a digital signal processed ultrasound for measure void fraction in an upward air-water two-phase flow

Milton Nishida, João Paulo Massignan, **Rafael Daciuk,** Flavio Neves Jr, Lucia Arruda; *UTFPR, CPGEI, Curitiba, PR, Brazil.*

Session: P2M. NDE Methods

Chair: **Kentaro Nakamura**
Tokyo Institute of Technology, Japan

P2M118-01 Study on feasibility of pressure pipe NDT based on ultrasonic guided wave

Li hua Shen, Yue min Wang, Feng rui Sun; *Naval Universtiy of Engineering, Wuhan, Hubei, China.*

P2M123-06 The reflection and transmission of Lamb waves across a rectangular crack as a function of the crack geometry

Yongrae Roh[1], Byungsoo Kim[2], Zhi Tian[2], Susong Lee[2], Wonseok Lee[2]; *[1]Kyungpook National University, School of Mechanical Engineering, Daegu, Daegu, Korea, Republic of, [2]Kyungpook National University, Korea, Republic of.*

P2M124-07 Tomographic vortex airflow imaging from single view acoustic travel time data

Haiyue Li, Akira Yamada; *Tokyo University of Agriculture & Technology, Japan.*

P2M125-08 Clamp-on Ultrasonic Flowmeters

Dharshanie Mahadeva, Roger C Baker, Jim Woodhouse; *University of Cambridge, United Kingdom.*

3:00 pm – 4:30 pm	POSTER --- Tuesday, November 4, 2008			2nd and 3rd Floor
Session: P2N. **Thin Film & Device Fabrication** ***Chair:*** **Bob Potter** *Vectron International, USA*	***P2O132-03*** **COM Analysis for LSAW filters** **Svetlana Malocha**, Benjamin Abbott; *Triquint Semiconductor, USA.*	***P2P139-05*** **The effect of parallelism of CMUT cells on phase noise for chem/bio sensor applications** **Hyunjoo Lee**, Kwankyu Park, Omer Oralkan, Mario Kupnik, Butrus (Pierre) Khuri-Yakub; *Stanford University, E. L. Ginzton Laboratory, Stanford, CA, USA.*		
P2N126-01 **Development of 6GHz resonator by using AlN diamond structure** **Satoshi Fujii**, Takatoshi Umeda, Shuichi Kawano, Masashi Fujioka, Mitsuhiro Yoda; *Seiko-Epson, Advanced Technology Development Center, Suwa-gun, Nagano, Japan.*	***P2O133-04*** **Precise Extraction of P-matrix as Frequency Dependent Function for Leaky Surface Acoustic Wave** **H. Wang[1]**, W. Wang[2], J. Lin[3], X. Shi[1], H. Wu[1], Y. Shui[1]; *[1]Institute of Acoustics, Nanjing Univ., China, [2]Shoulder Electronics Limited, Wuxi, Jiangsu, China, [3]Guilin Univ. of Electronic Technology, China.*	***P2P140-06*** **Errors of Phase and Group Delays in SAW RFID with Phase Modulation** T. Han[1], J. Lin[2], W. Wang[3], H. Wang[4], H. Wu[4], **Y. Shui[4]**; *[1]Shanghai Jiaotong Univ., China, [2]Guilin Univ. of Electronic Technology, China, [3]Shoulder Electronics Limited, China, [4]Key Laboratory of Modern Acoustics,Nanjing Univ., China.*		
P2N127-02 **Development of 4GHz Bulk Acoustic Wave Resonators by Sputtered Pb(Mn,Nb)O3-Pb(Zr,Ti)O3 Thin Films** T. Matsushima[1], **N. Yamauchi[1]**, T. Shirai[1], T. Yoshihara[1], Y. Hayasaki[1], I. Kanno[2], K. Wasa[2]; *[1]Matsushita Electric Works, Ltd., New Product & Technologies Development Department, Japan, [2]Kyoto Univ., Japan.*	***P2O134-05*** **Simulation of STW Resonator using COMSOL Multiphysics** **Wang Hualei**, Shi Yu, Zhong Hui; *University of Electronic Science and Technology of China, State key Laboratory of Electronic Thin Films and Integrated Devices, China.*			
P2N128-03 **Surface Acoustic Wave Devices on AlN/Single-crystal Diamond for High Frequency and High Performances Operation** M. Benetti[1], D. Cannatà[1], **F. Di Pietrantonio[1]**, E. Verona[1], S. Almaviva[2], G. Prestopino[2], C. Verona[2], G. Verona-Rinati[2]; *[1]Italian National Research Council, "O.M. Corbino" Institute of Acoustics, Italy, [2]Univ. of Rome Tor Vergata, Italy.*	***Session: P2P.*** **Sensors and ID-Tags Based on SAW** ***Chair:*** **Victor Plessky** *GVR Trade SA, Switzerland*			

P2N129-04 **Single Phase Transducer Consisting of AlGaN/GaN Film**

Koji Hohkawa[1], Satoshi Oshiyama[1], Keishin Koh[1], Kazumi Nishimura[2], Naoteru Shigekawa[2]; *[1]Kanagawa Institute of Technology, Japan, [2]NTT Photonics Laboratory, Japan.*

P2P135-01 **High Frequency Lamb Wave Device composed of LiNbO3 Thin Film**

Michio Kadota, **Takashi Ogami,** Kansho Yamamoto, Yasuhiro Negoro, Hikari Tochishita; *Murata Mfg. Co., Ltd., Japan.*

Session: P2O.
SAW Simulation

Chair: **Ken-ya Hashimoto**
Chiba University, Japan

P2P136-02 **Feasibility of Ultra-Wideband SAW Tags**

Sanna Harma[1], Victor Plessky[2]; *[1]Helsinki University of Technology, Department of Engineering Physics, Espoo, Finland, [2]GVR Trade SA, Bevaix, Switzerland.*

P2O130-01 **3D Finite Element Modeling of Real Size SAW Devices and Experimental Validation**

Sergei Zhgoon[1], Dmitriy Tsimbal[1], Alexander Shvetsov[1], Kushal Bhattacharjee[2]; *[1]MPEI, Russian Federation, [2]RF MD, USA.*

P2P137-03 **Perfusion of Cell and Particle Suspensions into Microporous Structures Using Surface Acoustic Wave Fluid Actuation**

Haiyan Li, James Friend, Leslie Yeo; *Micro/Nanophysics Research Laboratory, Department of Mechanical Engineering, Melbourne, VIC, Australia.*

P2O131-02 **2D polynomial modeling of Acoustic Wave Resonators**

A. Raherison[1], J.-E. Lefebvre[2], F. E. Ratolojanahary[3], L. Elmaimouni[4], T. Gryba[2]; *[1]Univ. de Valenciennes, IEMN-DOAE, France, [2]Univ. de Valenciennes, IEMN-DOAE, France, [3]Univ. de Fianarantsoa, LAPAUF, Madagascar, [4]Univ. Ibn Zohr, Faculte polydisciplinaire d'Ouarzazate, Morocco.*

P2P138-04 **A surface acoustic wave sensor for detection of cell adhesion**

Glen Guhr[1], **Raimund Brünig**[1], Martin Jäger[2], Rüdiger Poll[2], Hagen Schmidt[1], Manfred Weihnacht[3]; *[1]Leibniz Institute for Solid State and Materials Research Dresden, Germany, [2]Dresden University of Technology, Institute of Biomedical Engineering, Germany, [3]InnoXacs, Dippoldiswalde, Germany.*

8:30 am – 10:00 am — Oral --- Wednesday, November 5, 2008

	Session 1H. Cardiac Imaging	Session 2H. Cavitation Therapy	Session 3H. Transducer Modeling and Design	Session 4H. Device Modelling	Session 5H. Material and Defect Characterization	Session 6H. Optical & RF Ultrasonic Effects
	Chair: **James Miller** *Washington University in Saint Louis, USA*	*Chair:* **Zhen Xu** *University of Michigan, MI, USA*	*Chair:* **Reinhard Lerch** *Univ Erlangen, Germany*	*Chair:* **Clemens Ruppel** *EPCOS AG, Germany*	*Chair:* **Roman Maev** *University of Windsor, Canada*	*Chair:* **Robert Aigner** *TriQuint Semiconductor, USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
8:30 am	***1H-1*** **Cardiac Monitoring Using Transducers Attached Directly to the Heart** **Lars Hoff**[1], Andreas Espinoza[2], Halfdan Ihlen[2]; [1]*Vestfold University College, Horten, Norway,* [2]*Rikshospitalet University Hospital, Oslo, Norway.*	***2H-1*** **Histotripsy for the treatment of BPH: evaluation in a chronic canine model** **Timothy Hall**[1], Chris Hempel[1], Brian Fowlkes[2], Charles Cain[2], William Roberts[1]; [1]*University of Michigan Health System, Urology Surgery, USA,* [2]*University of Michigan, Biomedical Engineering, USA*	***3H-1*** **Finite Element Modeling of Ultrasonic Transducer by Utilizing an Inverse Scheme for the Determination of its Material Parameters** Felix Wolf, Tom Lahmer, Ludwig Bahr, Manfred Kaltenbacher, **Reinhard Lerch**; *University of Erlangen-Nuremberg, Department of Sensor Technology, Germany.*	***4H-1*** **Experimental and theoretical analyses of thermal sensitivity of periodically poled transducers for RF applications** **Emilie Courjon**, Julien Garcia, Gwenn Ulliac, William Daniau, Sylvain Ballandras; *FEMTO-ST, Besançon, France.*	***5H-1*** **Laser ultrasonic detection of corrosion and adhesive disbond using Zero-Group Velocity (ZGV) Lamb modes** Dominique Clorennec, **Claire Prada,** Marie Yoshida, Daniel Royer; *CNRS, Université Paris 7, ESPCI, Laboratoire Ondes et Acoustique, Paris, France.*	***6H-1*** **Passband Flattening of Acousto-Optic Tunable Filter** **I Chang**; *Accord Optics, Sunnyvale, CA, USA.*
8:45 am	***1H-2*** **Adaptive Dynamic Grid Interpolation: A Robust, High-Performance Displacement Smoothing Filter for Myocardial Strain Imaging** **Shuhui Bu**[1], Tsuyoshi Shiina[1], Makoto Yamakawa[2], Hotaka Takizawa[1]; [1]*University of Tsukuba, Japan,* [2]*Kyoto University, Japan.*	***2H-2*** **The Role of Inertial Caviation in Acoustic Droplet Vaporization** **Mario L. Fabiilli**, Kevin J. Haworth, Oliver D. Kripfgans, Paul L. Carson, J. Brian Fowlkes; *University of Michigan, Ann Arbor, MI, USA.*	***3H-2*** **A comparison of array element surface vibration calculated by FEM modelling and laser interferometer measurements** **P. van Neer**[1], G. Matte[1], J. Borsboom[1], P. Gatta[2], M. Pappalardo[2], N. de Jong[1]; [1]*ErasmusMC, Netherlands,* [2]*Università Roma Tre, Dipartimento di Ingegneria Elettronica, Rome, Italy.*	***4H-2*** **Simulation of Waveguiding in SAW Devices on Substrates with Anisotropic Slowness and Excitation** **Markus Mayer**[1], Andreas Bergmann[1], Guenter Kovacs[2], Karl Wagner[1]; [1]*Epcos AG, SAW RD BT, Germany,* [2]*Epcos AG, SAW COM WT, Germany.*	***5H-2*** **Homogenous TiO_2-SiO_2 Ultra-Low-Expansion Glass Evaluated by the Line-Focus-Beam Ultrasonic Material Characterization System** **M. Arakawa**[1], J.-i. Kushibiki[1], T. Ueda[2], A. Fujinoki[2]; [1]*Tohoku University, Electrical Engineering, Sendai, Japan,* [2]*Shin-Etsu Quartz Products Co., Ltd., Koriyama, Japan.*	***6H-2*** **Sound Pressure Measurement Utilizing Light Refractive Tomography** **Ludwig Bahr**, Reinhard Lerch; *University of Erlangen, Department of Sensor Technology, Erlangen, Bavaria, Germany.*

9:00 am	**1H-3 Ultrasonic Imaging of 3-Dimensional Propagation of Electric Excitation and Vibrations in Human Heart** **Hiroshi Kanai**[1], Junya Ohkohchi[2], Hideyuki Hasegawa[2]; *[1]Tohoku University, Department of Electronic Engineering, Sendai, Miyagi, Japan, [2]Tohoku University, Graduate School of Biomedical Engineering, Sendai, Miyagi, Japan.*	**2H-3 Cavitation Detection with Subharmonic Emissions by Low-power Sustaining Ultrasound** **S. Yoshizawa**[1], S.-i. Umemura[2], Y. Matsumoto[3]; *[1]Tohoku Univ., Japan, [2]Tohoku Univ., Japan, [3]The University of Tokyo, Department of Mechanical Engineering, Tokyo, Japan.*	**3H-3 Development of 1.5D Cylindrical HIFU Phased Array** **G.-S. Chen**[1], R. Liu[2], H. Chang[1], K. K. Shung[2]; *[1]National Health Research Institutes, Miaoli, Taiwan, [2]University of Southern California, Biomedical Engineering, USA.*	**4H-3 Quasi-2D COM model for diffraction calculation in slanted finger SAW devises** **E. Chilla**[1], A. V. Osetrov[2], B. Steiner[1], A. Jaffer[3], R. Gruenwald[1]; *[1]Vectron International, Germany, [2]St. Petersburg State Electrotech. University, Russian Federation, [3]Vectron International, United Kingdom.*	**5H-3 Ultrasonic Imaging of Thin Layers within Multi-Layered Structures** **Fredrik Hägglund**, Jesper Martinsson, Johan E. Carlson; *Lulea University of Technology, Dept. of Computer Science and Electrical Engineering, Lulea, Sweden.*	**6H-3 A New Fiber-Optic Switch-Multiplexer Based on 2D High Efficiency Multi-frequency Acousto-optic Deflection** **V. Proklov**[1], S. Antonov[1], A. Vainer[1], Y. Rezvov[2]; *[1]IRE RAS, Moscow, Russian Federation, [2]NIRChTU, Novomoskovsk, Russian Federation.*
9:15 am		**2H-4 Non-invasive thrombolysis induced by histotripsy pulsed cavitation ultrasound therapy** **A. Maxwell**[1], C. Cain[1], H. Gurm[2], J. B. Fowlkes[3], Z. Xu[1]; *[1]Univ. of Michigan, USA, [2]Univ. of Michigan, USA, [3]Univ. of Michigan, USA.*	**3H-4 Piezoelectric membrane sensor and technique for breathing monitoring** **Yuu Ono**[1], Dilshad Mohamed[1], Makiko Kobayashi[2], Cheng-Kuei Jen[2]; *[1]Carleton University, Canada, [2]National Research Council Canada, Canada.*	**4H-4 Two-Dimensional Grid Method for the Synthesis of SAW Filters** **Petr Ivanov**[1], Vladimir Makarov[1], Jidong Dai[2]; *[1]Moscow Engineering-Physical institute, Moscow, Russian Federation, [2]RF Monolithics Inc., Dallas, Texas, USA.*	**5H-4 Time reversal refocusing for a pulse signal through a randomly thinly layered heterogeneity** **Yinbin Liu**; *Institute of Acoustics, Chinese Academy of Sciences, China.*	**6H-4 Characterization of functionally graded coating by laser ultrasonics** **Yongdong Pan**[1], Xuehang Song[2], Zheng Zhong[2], Bertrand Audoin[3]; *[1]Tongji Univ., China, [2]Tongji Univ., Shanghai, China, [3]Université Bordeaux 1, France.*
9:30 am	**1H-4 Mapping Cardiac Currents using Ultrasound Current Source Density Imaging** **R. Olafsson**[1], R. S. Witte[2], C. Jia[1], S.-W. Huang[1], K. Kim[3], M. O'Donnell[4]; *[1]Univ. of Michigan, USA, [2]Univ. of Arizona, USA, [3]Univ. of Pittsburgh Medical Center, USA, [4]Univ. of Washington, USA.*	**2H-5 Mean Echo Power as a Measure of Flow Reduction for Bubble Occlusion Therapy** **K. Haworth**[1], M. Fabilli[1], J. B. Fowlkes[1], M. Zhang[1], O. Kripfgans[1], W. Roberts[2], P. Carson[1]; *[1]Univ. of Michigan, Radiology, USA, [2]Univ. of Michigan, Urology, USA.*	**3H-5 Design and Fabrication of a 40MHz Transducer with Enhanced Bandwidth** **Jian-Hung Liu**, Sheng-Yung Chen, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*	**4H-5 FEM/BEM Analysis of infinite periodic grating covered with an SiO2 overlay** **Pascal Ventura**[1], Julien Gratier[2]; *[1]Ventura R&D Consulting, NICE, France, [2]Triquint Semiconductor Inc., Orlando, Florida, USA.*	**5H-5 Defect detection in helical and central wires of steel strands using advanced ultrasonic guided wave technique with new type magnetostrictive transducers** **Zenghua Liu**, Yinong Zhang, Su Liu; *Beijing University of Technology, China.*	**6H-5 Towards thin film complete characterization using picosecond ultrasonics** **Pierre-Adrien Mante**, Arnaud Devos, Jean-François Robillard; *IEMN-CNRS, France.*
9:45 am	**1H-5 3D cardiac strain estimation using spatio-temporal elastic registration: in-vivo application** A. Elen[1], A. Horvath[1], J. Ganame[2], B. Amundsen[3], J.-U. Voigt[2], P. Claus[2], F. Maes[1], **J. D'hooge**[2]; *[1]Catholic Univ. of Leuven, Belgium, [2]Catholic Univ. of Leuven, Belgium, [3]Norwegian Univ. of Sci. and Tech., Norway.*	**2H-6 Cavitation assisted HIFU with phase-change nano droplet** **Ken-ichi Kawabata**[1], Rei Asami[1], Takashi Azuma[1], Hideki Yoshikawa[1], Shin-ichiro Umemura[2]; *[1]Central Research Laboratory, Hitachi, Ltd., Japan, [2]Tohoku University, Japan.*		**4H-6 Extraction of COM parameters on Pt/LGS for high temperature SAW sensor** **T. Aubert**, F. Sarry, O. Elmazria, L. Bouvot, B. Assouar, P. Nicolay; *Nancy Univ.-CNRS, Laboratoire de Physique des Milieux Ionisés et Applications UMR 7040, Vandoeuvre les Nancy, France.*	**5H-6 Measurement of lubricant film thickness using normal incidence ultrasound** Jingpin Jiao, **Qiang Zhang,** Bin Wu, Cunfu He; *Beijing University of Technology, College of Mechanical Engineering and Applied Electronic Technology, China.*	**6H-6 Simultaneous observation of induced longitudinal and shear acoustic phonons by Brillouin Scattering** **Y. Yoshida**[1], M. Matsukawa[1], T. Yanagitani[2]; *[1]Doshisha Univ., Japan, [2]Nagoya Institute of Technology, Japan.*

WEDNESDAY ORAL

10:30 am – 12:00 pm — Oral --- Wednesday, November 5, 2008

	Session 1I. Cardiovascular Imaging	Session 2I. Therapeutic Monitoring and Guidance	Session 3I. Polymers for Transducers	Session 4I. BAW Materials & Devices	Session 5I. Wave Propagation	Session 6I. Ultrasonic MEMS
	Chair: **Chris de Korte** *Radboud University Nijmegen Medical Centre, The Netherlands*	*Chair:* **Emad Ebbini** *University of Minnesota, USA*	*Chair:* **K Shung** *University of Sothern California, CA, USA*	*Chair:* **Gernot Fattinger** *TriQuint Semiconductor, USA*	*Chair:* **Massimo Pappalardo** *University di Roma TRE, Italy*	*Chair:* **Amit Lal** *Cornell University, USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
10:30 am	**1I-1 Rapid 3D Transesophageal Echocardiography using a fast-rotating multiplane transducer** **K. Nathanail**[1], M. van Stralen[1], C. Prins[2], F. van den Adel[2], P. J. French[3], N. de Jong[1], A. F.W. van der Steen[1], J. Bosch[1]; [1]*Thoraxcenter, Erasmus MC, Rotterdam, Netherlands,* [2]*Oldelft Ultrasound B.V., Netherlands,* [3]*TU Delft, Netherlands.*	**2I-1 A Backscatter-based Method for the Guidance of High Intensity Focused Ultrasound Treatment** **Xinliang Zheng**, Shahram Vaezy; *University of Washington, Bioengineering, Seattle, WA, USA*	**3I-1 Customizable Field Aiborne Ultrasonic Transducers based on Electromechanical Film** **Joao Ealo**[1], Fernando Seco[2], Carlos Prieto[2], Antonio Jiménez[2], Javier Roa[2], Aikaterini Koutsou[2], Jorge Guevara[2]; [1]*School of Mechanical Engineering - Universidad del Valle, Cali, Colombia,* [2]*Instituto de Automática Industrial - CSIC, Arganda del Rey, Madrid, Spain.*	**4I-1 Thermally stable oscillator at 2.5 GHz using compensated BAW resonator and its integrated temperature sensor** **David Petit**[1], Etienne César[2], Pierre Bar[1], Sylvain Joblot[1], Guy Parat[1], Jacques Verdier[3], Jean-François Carpentier[1]; [1]*STMicroelectronics, France,* [2]*STMicroelectronics, France,* [3]*CEA, France,* [4]*INL, Lyon, France.*	**5I-1 Invariants of the Time Reversal Operator and Ultrasonic Applications** **Claire Prada**, Mathias Fink; *CNRS, Université Paris 7, ESPCI, Laboratoire Ondes et Acoustique, Paris, France.*	**6I-1 Piezoelectric MEMS for Audio Signal Transduction, Microfluidic Management, Resonant Mass Sensing, and Movable Surface Micromachined Structures** **Eun Kim**; *University of Southern California, Electrical Engineering - Electrophysics, Los Angeles, CA, USA*
10:45 am	**1I-2 Improvement of 3D Ultrasound Computer Tomography Images by Signal Pre-Processing** **Nicole Ruiter**, Michael Zapf, Gregor Schwarzenberg, Hartmut Gemmeke; *Forschungszentrum Karlsruhe, Institute of Data Processing and Electronics, Germany.*	**2I-2 Real -time Monitoring of Mechanical and Thermal Tissue Response to Pulsed HIFU Beams** Dalong Liu, **Emad Ebbini**; *University of Minnesota, Biomedical Engineering, Minneapolis, MN, USA*	**3I-2 Low-acoustic attenuation and high-mechanical strength silicone rubber lens doped with ZnO nano-powder for medical array probe** **Y. (J.) Yamashita**[1], Y. Hosono[2], N. Yamamoto[2], K. Itsumi[2], Y. Makita[3], T. Takeuchi[3], K. Shibamoto[3], M. Aoki[3], H. Shikata[3]; [1]*Toshiba Research Consulting Corp., Japan,* [2]*Toshiba Corp, Japan,* [3]*Toshiba Medical Systems Corp., Japan.*	**4I-2 A UMTS-900 FBAR Duplexer** **Kun Wang**, Doug Clark, Stretch Carnitz; *Avago Technologies, San Jose, California, USA.*		

11:00 am	***1I-3*** **Functional Imaging of the Heart** **Jan D'hooge**, Piet Claus, Jens-Uwe Voigt, Frank Rademakers; *Catholic University of Leuven, Dept. of Cardiovascular diseases, Leuven, Belgium.*	***2I-3*** **Quantitative Image Feedback for Pulsed Cavitational Ultrasound Therapy- Histotripsy** **Tzu-Yin Wang**, Zhen Xu, Frank Winterroth, Edward Rothman, J. Brian Fowlkes, Charles Cain; *University of Michigan, USA.*	***3I-3*** **Optoacoustic sensor using self-assembled arrays of polystyrene microspheres** **Xinqing Guo**, Takashi Buma; *University of Delaware, USA.*	***4I-3*** **Advanced Determination of Piezoelectric Properties of AlN Thin Films on Silicon Substrates** **J.-L. Sanchez-Rojas**[1], J. Hernando[1], A. Ababneh[2], U. Schmid[2], J. Olivares[3], M. Clement[3], E. Iborra[3]; *[1]Univ. Castilla-La Mancha, Spain, [2]Universität des Saarlandes, Germany, [3]Univ. Politecnica de Madrid, Spain.*	***5I-2*** **Optimal Ultrasonic Array Focusing in Attenuative Solids** Abhijit Ganguli[1], Robert Gao[1], **Kenneth Liang**[2], Jacques Jundt[2]; *[1]University of Massachusetts, Amherst, USA, [2]Schlumberger-Doll Research, Cambridge, MA, USA.*	***6I-2*** **Concentration and mixing of particles in microdrops driven by focused surface acoustic waves** **James Friend**, Leslie Yeo, Ming Tan, Richard Shilton; *Monash University, MicroNanophysics Research Laboratory, Clayton, VIC, Australia.*
11:15 am		***2I-4*** **Use of passive arrays for characterization and mapping of cavitation activity during HIFU exposure** **M. Gyongy**, M. Arora, J. A. Noble, C. C Coussios; *Univ. of Oxford, Department of Engineering, Oxford, Oxfordshire, United Kingdom.*	***3I-4*** **A Fabrication Procedure for Airborne Ultrasonic Phased Arrays Based on Cellular Electromechanical Film** **J. Ealo**[1], J. Camacho[2], C. Fritsch[2], F. Seco[2], J. Roa[2]; *[1]Univ. del Valle, Cali, Colombia, [2]Instituto de Automática Industrial - CSIC, Spain.*	***4I-4*** **Growth of AlN on SiO_2 for high-Q composite Thin Film Bulk Acoustic Wave Resonators** **Alvaro Artieda**, Paul Muralt; *Ecole Polytechnique Federale de Lausanne, Switzerland.*	***5I-3*** **Guided Waves in Cylindrical Multi-layered Medium** **Hanyin Cui**, Bixing Zhang; *Institute of Acoustics, Chinese Academy of Sciences, National Laboratory of Acoustics, Beijing, China.*	***6I-3*** **Theoretical study of acoustic streaming induced cooling effect in the microscale** Hongming Sun, **Hang Guo**; *Pen-Tung Sah MEMS Research Center, Xiamen University, Xiamen, Fujian, China.*
11:30 am	**1I-4 Non-Invasive Ultrasonic Measurement of the Relative Volume Change of the Arterial Wall – First in vivo Trial** H. Mogensen[1], Å. R. Ahlgren[2], T. Jansson[1], K. Lindström[1], H. W Persson[1], **M. Cinthio**[1]; *[1]Lund Univ., Sweden, [2]Malmö Univ. Hospital, Sweden.*	***2I-5*** **Reaching the optimal focusing and steering capabilities of transcranial HIFU arrays based on time reversal of acoustically induced cavitation bubble signature.** **J. Gateau**[1], L. Marsac[2], M. Pernot[1], J.-F. Aubry[1], M. Tanter[1], M. Fink[1]; *[1]INSERM, CNRS UMR 7587, ESPCI, France, [2]Supersonic Imagine, France.*	***3I-5*** **Piezoelectric polymer foams: Recent developments in polyolefine, polyester and cycloolefine ferroelectrets** **Michael Wegener**; *Fraunhofer Institute for Applied Polymer Research, Functional Polymer Systems, Potsdam-Golm, Potsdam, Germany.*	***4I-5*** **Shear mode BAW resonator based on c-axis oriented AlN thin film** **Evgeny Milyutin**, Paul Muralt; *Ecole Polytechnique Federale de Lausanne, Switzerland.*	***5I-4*** **Plunging of metal pins using a 20 kHz ultrasonic vibration system** **J. Tsujino**[1], T. Ueoka[1], T. Sakurai[1], Y. Haraguchi[1], E. Sugimoto[2]; *[1]Kanagawa University, Faculty of Engineering, Yokohama, Japan, [2]Asahi EMS Co., Ltd, Tokyo, Japan.*	***6I-4*** **Electric power generation using a vibration of a polyurea piezoelectric thin film** **Daisuke Koyama**, Kentaro Nakamura; *Tokyo Institute of Technology, Precision and Intelligence Laboratory, Yokohama, Japan.*
11:45 am	***1I-5*** **Pulse Wave Imaging of Human Abdominal Aortas In Vivo** **Jianwen Luo**, Wei-Ning Lee, Shougang Wang, Elisa Konofagou; *Columbia University, Department of Biomedical Engineering, New York, NY, USA.*	***2I-6*** **Energy-based Adaptive focusing of waves: Application to ultrasonic imaging and Brain therapy** E. Herbert, **M. Pernot,** G. Montaldo, M. Tanter, M. Fink; *UMR 7587 CNRS, ESPCI, INSERM, Laboratoire Ondes et Acoustique, Paris, France.*	***3I-6*** **Ultralow Noise, High-frequency Ultrasound Detection Using Polymer Microring Photonic Resonators** **L. J. Guo**[1], S.-W. Huang[2], S.-L. Chen[1], T. Ling[1], A. Maxwell[2], S. Ashkenazi[2]; *[1]The Univ. of Michigan, USA, [2]The Univ. of Michigan, USA.*	***4I-6*** **A film bulk acoustic resonator fabricated with composite support diaphragm** **Liang Tang**, Zhenhong Hao, Donghai Qiao, Chenghao Wang; *Institute of Acoustics,Chinese Academy of Sciences, MEMS laboratory, Beijing, China.*	***5I-5*** **Development of temperature stable acoustic line based on piezoelectric plate and nanocomposite polymeric film** **I. Kuznetsova**[1], B. Zaitsev[1], A. Kuznetsova[1], A. Shikhabudinov[1], V. Kolesov[2]; *[1]Inst. of Radio Eng. and Electronics of RAS, Russian Federation, [2]Inst. of Radio Eng. and Electronics of RAS, Russian Federation*	***6I-5*** **Experimental investigations on the collapse of cavity cluster in high power ultrasound fields** **Lixin Bai**, Weilin Xu, Yichi Zhang, Yanfu Li, Defa Huang; *Sichuan University, China.*

WEDNESDAY ORAL

WEDNESDAY ORAL

1:30 pm – 3:00 pm — Oral --- Wednesday, November 5, 2008

	Session 1J. Cardiovascular Elastography	Session 2J. Beam Forming Algorith. and Strategies	Session 3J. Microbubbles: Theory and Characterization	Session 4J. Multilayer SAW Propagation	Session 5J. Liquid and Gas Sensing	Session 6J. Energy Harvesting & Magnetoelectrics
	Chair: **Jan D'hooge** *Catholic University of Leuven, Belgium*	*Chair:* **Kai Thomenius** *GE Global Research, USA*	*Chair:* **Ayache Bouakaz** *INSERM, Université Tours, France*	*Chair:* **Mauricio Pereira da Cunha** *University of Maine, ME, USA*	*Chair:* **Mario Kupnik** *Stanford University, USA*	*Chair:* **Mark Schafer** *Sonic Tech, PA, USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2A**	**Hall 2B**	**Hall 2C**
1:30 pm	***1J-1*** **Non-Invasive quantitative imaging of arterial wall elasticity using Supersonic Shear Imaging** M. Couade[1], **M. Pernot[2]**, M. Tanter[2], C. Prada[2], E. Messas[3], M. Fink[2]; *[1]SuperSonic Imagine, France, [2]UMR 7587 CNRS, ESPCI, INSERM, Laboratoire Ondes et Acoustique, Paris, France, [3]Hôpital Européen Georges Pompidou, INSERM 633, Paris, France.*	***2J-1*** **Optimal Apodization for Ultrasound Imaging** **Mariko Yamamoto[1]**, Shin-ichiro Umemura[2]; *[1]Hitachi , Ltd., Central Research Laboratory, Kokubunji-City, Tokyo, Japan, [2]Hitachi, Ltd., Central Research Laboratory, Japan.*	***3J-1*** **Oscillation of single microbubbles at room versus body temperature** Hendrik Vos, **Marcia Emmer,** Nico De Jong; *Erasmus MC Rotterdam, Biomedical Engineering, Netherlands.*	***4J-1*** **Piezoelectric Boundary Acoustic Waves: Their Underlying Physics and Applications** **Ken-ya Hashimoto[1]**, Yiliu Wang[1], Tatsuya Omori[1], Masatsune Yamaguchi[1], Michio Kadota[2], Hajime Kando[2], Teruhisa Shibahara[2]; *[1]Chiba University, Dept. EEE, Chiba, Chiba, Japan, [2]Murata MFG, Co. Ltd., Yasu, Shiga, Japan*	***5J-1*** **Inductively coupled sensing using a quartz crystal microbalance** **David Greve**, Wei Wu, Irving Oppenheim; *National Energy Technology Laboratory and Carnegie Mellon University, Electrical and Computer Engineering, Pittsburgh, PA, USA.*	***6J-1*** **A Magnetoelectric Transducer Consisting of Magnetostrictive and Piezoelectric Composite Array** **Ping Li**, Yumei Wen; *Chongqing University, College of Optoelectronic Engineering, China.*
1:45 pm	***1J-2*** **BiPlane Cardiac Strain Imaging: A Study on Valvular Aortic Stenosis** **R. G.P. Lopata[1]**, M. M. Nillesen[1], I. H. Gerrits[1], L. Kapusta[2], J. M. Thijssen[1], C. L. de Korte[1]; *[1]Radboud Univ. Nijmegen Medical Centre, Netherlands, [2]Radboud Univ. Nijmegen Medical Centre, Children's Heart Centre, Netherlands.*	***2J-2*** **Synthetic Aperture Sequential Beamforming** **Jacob Kortbek[1]**, Jørgen Arendt Jensen[2]; *[1]BK Medical, Denmark, [2]Technical University of Denmark, Denmark.*	***3J-2*** **Nonlinear Shell Dynamics near the Resonance Frequency of Ultrasound Contrast Agents** **Marlies Overvelde[1],** Valeria Garbin[1], Benjamin Dollet[1], Nico de Jong[2], Detlef Lohse[1], Michel Versluis[1]; *[1]University of Twente, Physics of Fluids, Enschede, Netherlands, [2]Erasmus MC, Experimental Echocardiography, Thoraxcentre, Rotterdam, Netherlands.*		***5J-2*** **Frequency response of a micromachined doubly-clamped vibrating beam for the measurement of liquid properties** **C. Riesch[1]**, E. K. Reichel[2], F. Keplinger[1], B. Jakoby[2]; *[1]Vienna Univ. of Tech., Inst. of Sensor and Actuator Systems, Austria, [2]Johannes Kepler Univ., Institute for Microelectronics and Microsensors, Linz, Austria.*	***6J-2*** **Magnetoelectric transducer of ferromagnetic alloy and piezoelectric ceramic for wireless power transmission** Leixiang Bian, **Yumei Wen,** Ping Li; *Chongqing University, Chongqing, China.*

2:00 pm	**1J-3 Characterization of Wave Origins in Electromechanical Wave Imaging** Jean Provost[1], Viatcheslav Gurev[2], Jianwen Luo[1], Natalia Trayanova[2], **Elisa Konofagou[1]**; [1]*Columbia University, USA,* [2]*Johns Hopkins University, USA.*	**2J-3 Focusing and steering ultrasound without creating detrimental grating lobes** **Armen Sarvazyan[1]**, Laurent Fillinger[1], Leonid R. Gavrilov[2]; [1]*Artann Laboratories, Trenton, NJ, USA,* [2]*N.N. Andreyev Acoustics Institute, Moscow, Russian Federation.*	**3J-3 A 3D FEA Model for transient analysis of microbubble behavior** **A. V. Patil[1]**, P. Reynolds[2], J. A. Hossack[1]; [1]*Univ. of Virginia, Biomedical Engineering, Charlottesville, Virginia, USA,* [2]*Weidlinger Associates, Inc., Mountain View, California, USA.*	**4J-2 A Full-Wave Analysis of Surface Acoustic Waves Propagating on a SiO_2 Overlay/Metal Grating/Rotated YX-$LiNbO_3$ Substrate Structure** **Y. Wang**, K.-y. Hashimoto, T. Omori, M. Yamaguchi; *Chiba Univ., Chiba, Chiba, Japan.*	**5J-3 Ultrasonic sensor of liquid media utilising low grade transducers** Alexander Kalashnikov, **Said Alzebda,** Ahmad Afaneh, Wei Chen, Richard Challis; *Nottingham University, United Kingdom.*	**6J-3 The Physical Acoustics of Energy Harvesting** **Stewart Sherrit;** *Jet Propulsion Laboratory, California Institute of Technology, Advanced Technologies Group, Pasadena, CA, USA.*
2:15 pm	**1J-4 Fundamental Performance Assessment of 2-D Myocardial Elastography in a Phased Array Configuration** **Jianwen Luo**, Wei-Ning Lee, Elisa Konofagou; *Columbia University, Department of Biomedical Engineering, New York, NY, USA.*	**2J-4 Rocking Convex Array used for 3D Synthetic Aperture Focusing** **H. Andresen[1]**, S. N. Ivanov[1], D. Buckton[2], J. A. Jensen[1]; [1]*Center for Fast Ultrasound Imaging, Elektro-DTU, Kgs. Lyngby, Denmark,* [2]*GE Medical Systems Kretztechnik, Zipf, Austria.*	**3J-4 Spectral and Temporal Signal Modifications Occuring Between Stable and Transient Inertial Cavitation** **M. Santin[1]**, A. Haak[2], L. Bridal[1], W. D. O'Brien[2]; [1]*UMR CNRS 7623, Paris, France,* [2]*University of Illinois at Urbana Champaign, IL, USA.*	**4J-3 Temperature Compensation of Longitudinal Leaky SAW waves with Silicon Dioxide Overlay** M. Patel[1], **K. Bhattacharjee[1],** J. Reed[1], S. Zhgoon[2]; [1]*RF Micro Devices, Greensboro, North Carolina, USA,* [2]*Moscow Power Engineering Institute, Moscow, Russian Federation.*	**5J-4 Clamp-on Ultrasonic Transducers with Improved Dynamics for Flow Mesuring Applications** **V. Hamidullin[1]**, R. Malakhanov[2], K. Degterev[1], D. Kryisin[2]; [1]*VZLJOT company, Russian Federation,* [2]*State Univ. of Aerospace Instrumentation, Russian Federation.*	
2:30 pm	**1J-5 2D Speckle Tracking vs DTI-derived Elasticity Imaging on an Isolated Rabbit Heart** **C. Jia[1]**, R. Olafsson[1], K. Kim[2], T. J Kolias[3], J. M Rubin[4], H. Xie[5], M. O'Donnell[6]; [1]*Univ. of Michigan, USA,* [2]*Univ. of Pittsburgh, USA,* [3]*Univ. of Michigan, USA,* [4]*Univ. of Michigan, USA,* [5]*Philips Research North America, USA,* [6]*Univ. of Washington, USA.*	**2J-5 Effects of Data Density of Echo Fourier Domain on Quality of High Frame Rate Imaging** **Jian-yu Lu;** *The University of Toledo, Bioengineering, Toledo, Ohio, USA.*	**3J-5 Statistical Corrections for the Precise Estimation of Cyanoacrylate Microbubble Concentration in Targeted Imaging** **M. Siepmann[1]**, M. Palmowski[2], F. Kiessling[2], G. Schmitz[1]; [1]*Ruhr-Univ. Bochum, Germany,* [2]*German Cancer Research Center, Germany.*	**4J-4 Study on SAW Characteristics of Amorphous-TeO2/36° Y-X LiTaO3 Substrates** **Xun Gong**, Xiaoli Shang, De Zhang; *Key Laboratory of Modern Acoustics (Nanjing University), Ministry of Education, China.*	**5J-5 2-Step Surface Modification Technology for Acoustic Chemical Sensor Arrays** **Y. Li**, R. Lucklum, P. Hauptmann; *Institute of Micro- and Sensor Systems (IMOS), Magdeburg, Saxony-Anhalt, Germany.*	**6J-4 Ultrasonic Thermoacoustic Energy Conversion** **Orest Symko**, Myra Flitcroft; *University of Utah, Physics, Salt Lake City, UT, USA.*
2:45 pm	**1J-6 In Vivo Validation of Myocardial Elastography at Variable Levels of Ischemia** **Wei-Ning Lee**, Jean Provost, Shougang Wang, Kana Fujikura, Jie Wang, Elisa E. Konofagou; *Columbia University, New York, NY, USA.*	**2J-6 The effect of cross-correlation method on the dual apodization with cross-correlation algorithm** **Chi Hyung Seo**, Jesse T. Yen; *University of Southern California, USA.*	**3J-6 Nano-interrogation of a lipid shelled microbubble** **V. Sboros[1]**, E. Glynos[2], N. Pelekasis[3], V. Koutsos[2]; [1]*Univ. of Edinburgh, United Kingdom,* [2]*Univ. of Edinburgh, Institute of Materials and Processes, United Kingdom,* [3]*Univ. of Thessaly, Mechanical Engineering, Greece.*	**4J-5 Optimal cut of lithium niobate with suppressed Rayleigh-type mode for application in resonator SAW filter** **Natalya Naumenko[1]**, Ben Abbott[2]; [1]*Moscow Steel and Alloys Institute, Moscow, Russian Federation,* [2]*TriQuint Semiconductors, Apopka, FL, USA.*	**5J-6 A design of high-sensitivity micromachined capacitive ultrasonic mass resonators** **Li-Feng Ge;** *Anhui University, School of Electronic Science and Technology, Hefei, Anhui, China.*	

WEDNESDAY ORAL

4:30 pm – 6:00 pm — Oral --- Wednesday, November 5, 2008

	Session 1K. Vector Velocity Imaging	Session 2K. Adaptive Beam Forming	Session 3K. Contrast Agent Imaging: Methods and Applications	Session 5K. Acoustic Wave Sensors	Session 6K. Medical Arrays
	Chair: **Hans Torp** *Norwegian University of Science and Technology, Norway*	*Chair:* **Sverre Holm** *University of Oslo, Norway*	*Chair:* **Nico de Jong** *Erasmus Medical Centre and Univ. of Twente, The Netherlands*	*Chair:* **Pierre Khuri-Yakub** *Stanford University, CA, USA*	*Chair:* **L. Scott Smith** *GE Global Research, USA*
	Hall 3	**Room 201A/B/C**	**Room 305A/B/C**	**Hall 2B**	**Hall 2C**
4:30 pm	***1K-1*** **An Automatic Angle Tracking Method for Dual-Beam Vector Doppler Applications** **Piero Tortoli**, Alessandro Dallai, Luca Bassi, Enrico Boni, Stefano Ricci; *Università di Firenze, Electronics & Telecommunications, Firenze, Italy.*	***2K-1*** **Sensitivity of Minimum Variance Beamforming to Tissue Aberrations** Andreas Austeng[1], Tore Bjastad[2], Johan-Fredrik Synnevaag[1], Svein-Erik Masoy[2], Hans Torp[2], **Sverre Holm[1]**; *[1]University of Oslo, Norway, [2]Norwegian University of Science and Technology, Trondheim, Norway.*	***3K-1*** **Acoustic Characterisation of Individual Targeted Microbubbles with High-Frequency Ultrasound.** **Michael R. Sprague[1]**, David E. Goertz[1], Emmanuel Chérin[2], Raffi Karshafian[1], F. Stuart Foster[1]; *[1]University of Toronto, Department of Medical Biophysics, Canada, [2]Sunnybrook Health Sciences Centre, Toronto, Canada.*	***5K-1*** **SAW Wireless, Passive Sensor Spread Spectrum Platforms** **Donald Malocha;** *Univ. of Central Florida, SEECS, Orlando, Fl, USA.*	***6K-1*** **Comprehensive Design Considerations for 2D Matrix Arrays** **Xuan-ming Lu**; *Siemens, USD, Issaquah, WA, USA.*
4:45 pm	***1K-2*** **In-vivo evaluation of three ultrasound vector velocity techniques with MR phase contrast angiography** **Kristoffer L. Hansen[1]**, Jesper Udesen[2], Niels Oddershede[3], Lasse Henze[2], Carsten Thomsen[1], Jørgen A. Jensen[2], Michael B. Nielsen[1]; *[1]Department of Radiology, University Hospital of Copenhagen, Denmark, [2]Technical University of Denmark, Denmark, [3]GN Resound, Denmark.*	***2K-2*** **Adaptive Imaging Using Principal-Component-Synthesized Aperture Data** **Meng-Lin Li;** *National Tsing Hua University, Department of Electrical Engineering, Hsinchu, Taiwan.*	***3K-2*** **In vitro measurement of ambient pressure changes using a realistic clinical setup** **Klaus Scheldrup Andersen**, Jørgen Arendt Jensen; *Technical University of Denmark, Center for Fast Ultrasound Imaging, Lyngby, Denmark.*	***5K-2*** **Wireless Multiple Access Passive Coded Sensor System** Evan Dudzik, Ali Abedi, Donald Hummels, **Mauricio Pereira da Cunha**; *University of Maine, Electrical Engineering, Orono, ME, USA.*	***6K-2*** **A 5-Plane CMUT Array for Operator-Independent Carotid Artery Screening: Initial Results** **Xuefeng Zhuang**, Der-Song Lin, Jessica Faruque, Omer Oralkan, Sandy Napel, R. Brooke Jeffrey, Butrus T. Khuri-Yakub; *Stanford University, USA.*

5:00 pm	**1K-3 Double-Beam Diffraction-Grating Transducers for Improved Blood Flow Measurement** **David Vilkomerson**; *DVX, Princeton, NJ, USA.*	**2K-3 Investigation of Sound Speed Errors in Adaptive Beamforming** **Iben Kraglund Holfort**[1], Fredrik Gran[2], Joergen Arendt Jensen[1]; [1]*Technical University of Denmark, Center for Fast Ultrasound Imaging, Kgs. Lyngby, Denmark,* [2]*GN ReSound A/S, Ballerup, Denmark.*	**3K-3 Enhancement of static bubble signal in large vessels using composite dual frequency pulses** **A. V. Patil**[1], J. J Rychak[2], A. L. Klibanov[3], J. A. Hossack[1]; [1]*Univ. of Virginia, Biomedical Engineering, USA,* [2]*Targeson LLC, USA,* [3]*Univ. of Virginia, Cardiovascular Medicine, Charlottesville, Virginia, USA.*	**5K-3 A study of Love wave devices with SU8 guiding layer** **Ye Chen**, Jie Zhao, Honglang Li, Shitang He; *Institute of Acoustics, Chinese Academy of Sciences, Beijing, China.*	**6K-3 A PZT-P[VDF-TrFE] dual-layer transducer for 3-D imaging** **Jesse Yen**, Chi Hyung Seo, Samer Awad, Jong Jeong; *University of Southern California, USA.*
5:15 pm	**1K-4 Fast Blood Vector Velocity Imaging using ultrasound: In vivo examples of complex blood flow in the vascular system.** **K. L. Hansen**[2], J. Udesen[1], F. Gran[1], M. B. Nielsen[2], J. A. Jensen[1]; [1]*Technical University of Denmark, Denmark,* [2]*University Hospital of Denmark, Denmark.*	**2K-4 Low-Complexity Data-Dependent Beamforming** Johan-Fredrik Synnevåg, **Sverre Holm,** Andreas Austeng; *University of Oslo, Department of Informatics, Oslo, Norway.*	**3K-4 Ultrasound contrast agent microbubble displacement by primary radiation force including compression-only and threshold effects** **Peter Frinking**, Emmanuel Gaud, Marcel Arditi; *Bracco Research S.A., Plan-les-Ouates, Geneva, Switzerland.*	**5K-4 Application of Lithium Niobate Etch Stop Technology to SAW Pressure Sensors** **Andrew Randles**[1], Jan Kuypers[2], Masayoshi Esashi[1], Shuji Tanaka[1]; [1]*Tohoku University, Sendai, Miyagi, Japan,* [2]*University of California at Berkeley, USA.*	**6K-4 Piezocomposite and CMUT Arrays Assessment Trough In Vitro Imaging Performances** **Mathieu Legros**, Guillaume Férin, Cyril Meynier, Rémi Dufait; *Vermon S.A., Tours, France.*
5:30 pm	**1K-5 Estimation of Valvular Regurgitation Area by 3D HPRF Doppler** **Torbjørn Hergum**[1], Thomas Renhult Skaug[1], Knut Matre[2], Hans Torp[1]; [1]*Norwegian University of Science and Technology, Department of circulation and medical imaging, Trondheim, Norway,* [2]*University of Bergen, Institute of Medicine, Bergen, Norway.*	**2K-5 High Frame Rate Adaptive Imaging Using Coherence Factor Weighting and the MVDR Method** **Shun-Li Wang**, Pai-Chi Li; *National Taiwan University, Taipei, Taiwan.*	**3K-5 Suppression of tissue-harmonics for pulse-inversion imaging using time-reversal** **Olivier Couture**, Jean-François Aubry, Gabriel Montaldo, Mickael Tanter, Mathias Fink; *LOA, ESPCI, France.*	**5K-5 Development of Ball SAW Gas Chromatogram System for Analysis of Hydrocarbon and Alcohol** **Shingo Akao**[1], Masanori Sakuma[1], Kentaro Kobari[1], Yutaro Yamamoto[1], Kazuhiro Noguchi[2], Toshihiro Tsuji[1], Noritaka Nakaso[2], Kazushi Yamanaka[1]; [1]*Tohoku University, Japan,* [2]*Toppan Printing Co. Ltd, Japan.*	**6K-5 Recent results using a 256 × 256 2-D array transducer for 3-D Rectilinear Imaging** **Chi Hyung Seo**, Jesse T. Yen; *University of Southern California, USA.*
5:45 pm	**1K-6 Vector Doppler Imaging with a Position Sensor for Measuring Complex Blood flow in Carotid Arteries** **C. Xu**[1], V. Shamdasani[1], D. Leotta[2], E. Stutzman[3], K. Beach[3], Y. Kim[1]; [1]*Univ. of Washington, USA,* [2]*Univ. of Washington, USA,* [3]*Univ. of Washington, Department of Surgery, Seattle, WA, USA.*	**2K-6 Adaptive beamforming for photoacoustic imaging using linear array transducer** Suhyun Park, Andrei Karpiouk, Salavat Aglyamov, **Stanislav Emelianov**; *The University of Texas at Austin, Biomedical Engineering, Austin, TX, USA.*	**3K-6 Nonlinear contrast imaging with Capacitive Micromachined Transducers** **Anthony Novell**[1], Mathieu Legros[2], Nicolas Félix[2], Ayache Bouakaz[1]; [1]*INSERM UMR 930 - CNRS FRE 2448 and Université F. Rabelais, Tours, France,* [2]*Vermon SA, Tours, France.*	**5K-6 Electrically Isolated Thickness Shear Mode Liquid Phase Sensor for High Pressure Environments** **Jeffrey Andle**, Reichl Haskell, Maly Chap; *Vectron, Intl., SenGenuity Div., Hudson, NH, USA.*	

Session: P3A. Tissue Characterization - Technologies

Chair: **James Miller**
Washington University in Saint Louis, USA

P3A023-01 Real-time cardiac 3D strain assessment in 3D echocardiography using a state estimation approach

F. Orderud[1], G. Kiss[2], S. Langeland[3], E. W. Remme[4], H. G. Torp[2], S. I. Rabben[3]; *[1]Norwegian Univ. Sci. and Tech. (NTNU), Norway, [2]Norwegian Univ. Sci. and Tech. (NTNU), Norway, [3]GE Vingmed Ultrasound AS, Norway, [4]Rikshospitalet Univ. Hospital, Norway.*

P3A024-02 Parametric Imaging of Specular Reflections and Diffuse Scattering of Tissue from Multi-Directional Ultrasound Echo Signal Data

Michael Vogt, **Jörn Opretzka,** Helmut Ermert; *Ruhr-University Bochum, Dept. of Electrical Engineering and Information Technology, Bochum, Germany.*

P3A025-03 50 MHz Ultrasound Characterization of Colitis on Rats, in vitro

M. Soldan[1], P. Silva[2], A. Schanaider[2], J. Machado[3]; *[1]Clementino Fraga Filho Univ. Hospital - Federal Univ. of Rio de Janeiro, Brazil, [2]School of Medicine, Federal Univ. of Rio de Janeiro, Brazil, [3]COPPE/Federal Univ. of Rio de Janeiro, Brazil.*

Session: P3B. Tissue Characterization - In Vivo Applications

Chair: **Stanislav Emelianov**
University of Texas at Austin, TX, USA

P3B030-01 Non-invasive staging of hepatic steatosis using Computer-Aided Ultrasound diagnosis

J. Thijssen[1], G. Weijers[1], A. Starke[2], A. Haudum[2], K. Herzog[2], J. Rehage[2], **C. de Korte**[3]; *[1]Radboud Univ. Nijmegen Medical Centre, Netherlands, [2]Univ. of Veterinary Medicine Hannover, Germany, [3]Radboud Univ. Nijmegen Medical Centre, Netherlands.*

P3B031-02 A Compound Ultrasound Imaging Strategy in Carpel Tunnel Syndrome Diagnosis

C.-K. Yeh[1], Y.-J. Yue[1], W.-S. Chen[2]; *[1]National Tsing Hua Univ., Dept. of Biomedical Engineering and Environmental Sciences, Hsinchu, Taiwan, [2]National Taiwan University Hospital, Department of Physical Medicine and Rehabilitation, Taipei, Taiwan.*

P3B032-03 Quantitative assessment of burn degree using high frequency ultrasonic backscattered signals and parametric images

Yi-Hsun Lin, Chih-Chung Huang, Shyh-Hau Wang; *Chung Yuan Christian University, Biomedical Engineering, Chung Li, Tao Yuan, Taiwan.*

Session: P3C. Elastography

Chair: **Chris de Korte**
Radboud University Nijmegen Medical Centre, The Netherlands

P3C037-01 Comparison of Multiple Beam Sequences in Arterial ARFI Imaging

Russell Behler[1], Timothy Nichols[2], Elizabeth Merricks[2], Caterina Gallippi[1]; *[1]University of North Carolina at Chapel Hill, Department of Biomedical Engineering, USA, [2]University of North Carolina at Chapel Hill, Department of Pathology and Laboratory Medicine, USA.*

P3C038-02 Acoustic Radiation Force Based Quantification of Tissue Shear Modulus within the Region of Excitation

Mark Palmeri, David Xuo, **Liang Zhai,** Kathryn Nightingale; *Duke University, Biomedical Engineering, Durham, North Carolina, USA.*

P3C039-03 A Combined ARFI Sequence For 2D Displacement Imaging and Shear Wave Velocity Mapping

Liang Zhai[1], Stephen Hsu[2], Kathy Nightingale[2]; *[1]Duke University, Biomedical Engineering, USA, [2]Duke University, USA.*

P3C044-08 Maximal accumulative respiration strain for the assessment of hepatic fibrosis: preliminary studies

J. Shao[1], X. Hu[2], K. Liu[1], L. Qian[2], J. Wang[3], J. Bai[1]; *[1]Department of Biomedical Engineering, Tsinghua Univ., China, [2]Department of Diagnostic Ultrasound, Youyi Hospital, China, [3]Department of Diagnostic Ultrasound, Peking Univ. Third Hospital, China.*

P3C045-09 Computer-aided Diagnosis of Diffuse Disease based on Ultrasound Elasticity Images

Masakazu Yamazaki, Tsuyoshi Shiina, Hotaka Takizawa; *University of Tsukuba, Tsukuba, Ibaraki, Japan.*

P3C046-10 An ultrasound imaging method for in vivo measurement of tracheal elasticity

Chao-Ling Wu, Chih-Yen Chen, Huihua Kenny Chiang; *National Yang-Ming University, Biomedical Engineering, Taipei, Taiwan.*

P3C047-11 Non-invasive in vivo strain imaging of carotid cross-sections: reproducibility of strain estimates obtained with and without beam-steering during subsequent heart cycles

Hendrik H.G. Hansen, Richard G.P. Lopata, Chris L. de Korte; *Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands.*

P3D051-02 Cavitation Enhanced Ultrasound Thrombolysis

Cheng Xu, Xiaojing Li, Mingxi Wan; *School of Life Science and Technology, Xi'an Jiaotong University, The Key Laboratory of Biomedical Information Engineering of Ministry of Education, Xi'an, Shaanxi, China.*

P3D052-03 A Pre-treatment Planning Strategy for High-Intensity Focused Ultrasound (HIFU) Treatments: Optimized Source Placement

P. J. White[1], B. Andre[2], N. J. McDannold[1], G. T. Clement[1]; *[1]Harvard Medical School, Brigham and Women's Hospital, Dept. of Radiology, USA, [2]Boston Univ., USA.*

P3D053-04 A Nonlinear Method for High-Intensity Focused Ultrasound (HIFU) Aberration Reduction

Phillip Jason White, Pat von Pattenberg, Greg T. Clement; *Harvard Medical School, Brigham and Women's Hospital, Department of Radiology, Boston, MA, USA.*

P3D054-05 Thermal Breakdown Caused by High-Amplitude and Long-Burst Pulse Transmission for Phase-Conversion Molecular Imaging

Takashi Azuma[1], Ken-ichi Kawabata[1], Shin-ichiro Umemura[2]; *[1]Hitachi Central Research Laboratory, Kokubunji, Tokyo, Japan, [2]Tohoku University, Japan.*

P3A026-04 Ultrasound backscattering by three-dimensional distributions of aggregated red blood cells: A Monte Carlo study

Ratan Kumar Saha, Guy Cloutier; *University of Montreal Hospital Research Centre, Laboratory of Biorheology and Medical Ultrasonics, Montreal, Quebec, Canada.*

P3A027-05 Assessment of Red Blood Cell Aggregation Using Normalized Power Spectrum of High Frequency Ultrasound

Nobutaka Saitoh[1], Hideyuki Hasegawa[2], Hiroshi Kanai[1]; *[1]Graduate School of Engineering, Tohoku University, Japan, [2]Graduate School of Biomedical Engineering, Tohoku University, Japan.*

P3A028-06 Strain Estimation with Center Frequency Correction and Reliable Displacement Selection.

Takao Suzuki, Takenori Fukumoto, Makoto Kato; *Panasonic Shikoku Electronics Co., Ltd., Yokohama, Japan.*

P3A029-07 Biomedical Application of Acoustic Microscopy - Diagnosis, Assessing Echogenecity and Biomechanics

Yoshifumi Saijo; *Tohoku University, Department of Biomedical Imaging, Sendai, Japan.*

P3B033-04 Accurate Ultrasonic Measurement of Myocardial Regional Strain Rate at High Temporal and Spatial Resolutions

Yasunori Honjo[1], Hideyuki Hasegawa[2], Hiroshi Kanai[1]; *[1]Graduate School of Engineering, Tohoku University, Japan, [2]Graduate School of Biomedical Engineering, Tohoku University, Japan.*

P3B034-05 Flow-Mediated Change in Viscoelasticity of Radial Artery Noninvasively Measured by 22-MHz Ultrasound

Kazuki Ikeshita[1], Hideyuki Hasegawa[2], Hiroshi Kanai[1]; *[1]Graduate School of Engineering, Tohoku University, Japan, [2]Graduate School of Biomecical Engineering, Tohoku University, Japan.*

P3B035-06 Time-domain model of the ultrasonic wave propagation in an inhomogeneous anisotropic fluid/solid multilayer medium: application to cortical bone

G. Haiat[1], Q. Grimal[2], T. Maryline[3], C. Descelliers[4], C. Soize[4], S. Naili[5]; *[1]CNRS, B2OA, Paris, France, [2]Univ. Pierre et Marie Curie-Paris6, France, [3]CNRS, Laboratoire d'Imagerie Paramétrique, France, [4]Univ. Paris-Est, France, [5]Univ. Paris-Est, France.*

P3B036-07 Anisotropy of ultrasonic longitudinal wave in the cortical bone of bovine femur

Yuichiro Yaoi[1], Kazufumi Yamamoto[2], Takaaki Koizumi[1], Mami Matsukawa[1], Kaoru Yamazaki[2], Akira Nagano[2]; *[1]Doshisha University, Kyotanabe, Kyoto, Japan, [2]Hamamatsu University School of Medicine, Hamamatsu, Shizuoka, Japan.*

P3C040-04 The Effect of Nonlinearity on Focused Impulsive Acoustic Radiation Force Excitations

Gianmarco Pinton, Gregg Trahey, Mark Palmeri, Kathy Nightingale; *Duke University, Biomedical Engineering, Durham, NC, USA.*

P3C041-05 Improvement on the Elastic Visualization of Thermal Lesion Using Block Wavelet Shrinkage

Dachun Zhang, Mingxi Wan, Hongmei Zhang, Supin Wang; *Xi'an Jiaotong University, The Key Laboratory of Biomedical Information Engineering of Ministry of Education, China.*

P3C042-06 Robust Strain Estimation Using Adaptive Dynamic Grid-Interpolation Model

Makoto Yamakawa[1], Shuhui Bu[2], Tsuyoshi Shiina[2]; *[1]Kyoto University, Japan, [2]University of Tsukuba, Japan.*

P3C043-07 Reverberation Reduction in Vibro-acoustography using Channel Estimation Method

Y. Zheng[1], A. Yao[1], J. Lin[1], R. Kinnick[2], J. Greenleaf[2], M. Fatemi[2]; *[1]St. Cloud State Univ., Electrical and Computer Engineering, USA, [2]Mayo Clinic College of Medicine, Physiology and Biomedical Engineering, Rochester, MN, USA.*

P3C048-12 Quantitative elastography, solving the inverse elasticity problem using the Gauss-Newton method.

M. Sette[1], J. F. Camino[2], J. D'hooge[3], H. V. Brussel[4], J. V. Sloten[1]; *[1]Katholieke Univ. Leuven, Belgium, [2]Univ. of Campinas, Brazil, [3]Katholieke Unive. Leuven, Belgium, [4]Katholieke Univ. Leuven, Belgium.*

P3C049-13 Viscoelastic Characterization of Soft Tissues by Dynamic Micro-Elastography (Dme) in the Frequency Range of 300 Hz - 1500 Hz

Cedric Schmitt, Anis Hadj Henni, Guy Cloutier; *Laboratory of Biorheology and Medical Ultrasonics, Montreal, Quebec, Canada.*

Session: P3D. Therapeutic Ultrasound Applications

Chair: **Greg Clement**
Brigham & Women's Hospital, USA

P3D050-01 Standing waves suppression in transcranial ultrasound therapy using random-signal-modulation excitation

Sai Chun Tang, Gregory Clement; *Harvard Medical School / Brigham and Women's Hospital, Radiology, Boston, MA, USA.*

P3D055-06 Contrast Agent Kinetics in the Rabbit Brain During Exposure to Focused Ultrasound

David Goertz, Cameron Wright, Kullervo Hynynen; *Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada.*

P3D056-07 Characterization of sonicated breath films by Atomic Force Microscopy

Timur Saliev, Matt Mullan, Paul Campbell; *University of Dundee, Dundee, Scotland, United Kingdom.*

3:00 pm – 4:30 pm | POSTER --- Wednesday, November 5, 2008 | 2nd and 3rd Floor

Session: P3E. Therapeutic Ultrasound Technologies

Chair: **Nobuki Kudo**
Hokkaido University, Japan

P3E057-01 Progress in CMUTs for HIFU ablation of lower abdominal cancer

Serena Wong[1], Ronald Watkins[2], Mario Kupnik[1], Kim Butts Pauly[2], Butrus T. Khuri-Yakub[1]; [1]*Stanford University, Electrical Engineering, Stanford, CA, USA,* [2]*Stanford University, Radiology, USA.*

P3E058-02 Development of a reliable ultrasound power source for metrological applications

Elyr Alves, Rodrigo Costa-Felix; *Inmetro, Laboratory of Ultrasound, Duque de Caxias, Rio de Janeiro, Brazil.*

P3E059-03 A harmonic cancellation technique for an ultrasound transducer excited by a switched-mode power converter

Sai Chun Tang, Gregory Clement; *Harvard Medical School / Brigham and Women's Hospital, Radiology, Boston, MA, USA.*

Session: P3F. MUT Transducers

Chair: **Qifa Zhou**
University of Southern California, CA, USA

P3F064-01 Curvilinear Capacitive Micromachined Ultrasonic Transducer (CMUT) Array Fabricated Using a Reverse Process

A. Caronti, A. Coppa, A. Savoia, C. Longo, B. Mauti, P. Gatta, G. Caliano, M. Pappalardo; *Univ. Roma Tre, Aculab, Dept. of Electronics Engineering, Roma, Italy.*

P3F065-02 Dual-Electrode CMUT optimization for CMUTs with uniform and non-uniform membranes

Rasim Guldiken, Jaime Zahorian, Mujdat Balantekin, **Levent Degertekin**; *Georgia Institute of Technology, USA.*

P3F066-03 The design and characterization of capacitive micromachined ultrasonic transducers (CMUTs) for generating high-intensity ultrasound for transmission of directional audio

I. Wygant[1], M. Wochner[2], **M. Kupnik[1],** J. Windsor[2], W. Wright[2], M. Hamilton[2], B. Khuri-Yakub[1]; [1]*Stanford Univ., USA,* [2]*Univ of Texas at Austin, USA.*

Session: P3G. Material Characterisation and Fabrication Technology

Chair: **Qifa Zhou**
University of Southern California, CA, USA

P3G071-01 An improved Sandwich Dipole Transducer for High Temperature Environment

L. Zheng[1], **W. Lin[1],** D. Wang[1], J. Shen[2], H. Zhang[1], X. Wang[1] ; [1]*The State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, Beijing, China,* [2]*The Laboratory of Acoustic Well Logging, Tianjin Univ., China.*

P3G072-02 Design and Fabrication of a Novel PZT Films Based Piezoelectric Micromachined Ultrasonic Transducer

Junhong Li, Chenghao Wang; *Institute of Acoustics, Chinese Academy of Science, China.*

P3G073-03 Effect of surface modification of titanium substrate by anodic oxidation on hydrothermally synthesized PZT poly-crystalline film

T. Uchida[1], T. Kikuchi[1], T. Murakami[2], N. Kawashima[2], S. Takeuchi[2]; [1]*AIST, National Metrology Institute of Japan, Tsukuba, Ibaraki, Japan,* [2]*Toin University of Yokohama, Japan.*

P3G078-08 Model-based Dynamic Characteristics Investigation of Ultrasonic Transducers for MEMS Packaging

F. Wang[1], X. Zhao[1], D. Zhang[1], Y. Wu[2], Y. Sun[1]; [1]*Tianjin Univ., School of Mechanical Engineering, Tianjin, China,* [2]*Hebei Univ. of Technology, Department of Mechanical Engineering, Tianjin, China.*

P3G079-09 A design of ultrasonic compaction tools for metal powder magnetic core of motors

Shinichi Kikuchi, Daisuke Koyama, Kentaro Nakmura; *Tokyo Institute of Technology, Japan.*

Session: P3H. Material Properties III

Chair: **Yook-Kong Yong**
Rutgers University, NJ, USA

P3H080-01 Crystal Orientation and Stress in AC Reactively Sputtered AlN Films on Mo Electrodes for Electro-Acoustic Devices

Valery Felmetsger, Pavel Laptev; *Tegal Corporation, PVD Product Group, San Jose, CA, USA.*

Session: P3I. Bulk Wave Effects & Devices

Chair: **John D. Larson**
Avago Technologies, USA

P3I085-01 Optimal Electrode Shape and Size of Plate Thickness-Shear Mode Piezoelectric Resonators

Z. Yang[1], S. Guo[2], J. Yang[3]; [1]*Central South Univ., Institute of Mechanics and Sensing Technology, School of Civil Engineering and Architecture, Changsha, Hunan, China,* [2]*Central South Univ., China,* [3]*Univ. of Nebraska, USA.*

P3I086-02 Reflection and refraction of bulk acoustic waves in piezoelectric crystals under the action of bias electric field and uniaxial pressure

B. Sorokin[1], **S. Burkov[1],** K. Aleksandrov[2], A. Karpovich[1]; [1]*Siberian Federal Univ., Solid State Physics, Russian Federation,* [2]*Siberian Branch of the Russian Academy of Sciences, Russian Federation.*

P3I087-03 Wireless energy transmission through a thin metal wall by shear wave using two piezoelectric transducers

Hongping Hu, Yuantai Hu, Chuanyao Chen; *Huazhong University of Science and Technology, Department of Mechanics, Wuhan, Hubei, China.*

P3E060-04 A Model-Based Displacement Outlier Removal Algorithm for Ultrasonic Temperature Estimation

Guoliang Ye, J. Alison Noble, Penny Probert Smith; *University of Oxford, Department of Engineering Science, Oxford, Oxfordshire, United Kingdom.*

P3E061-05 A Novel Ultrasonic-Imaging Based Temperature Estimation Approach by Instantaneous Frequency Detection

H.-L. Liu[1], S.-M. Huang[1], M.-L. Li[2], K.-C. Ju[3]; *[1]Chang Gung Univ., Department of Electrical Engineering, Tao Yuan, Taiwan, [2]National Tsing-Hua Univ., Hsinchu, Taiwan, [3]I-Shou Univ., Kaohsiung, Taiwan.*

P3E062-06 Thermal imaging with ultrasound reflex transmission methods

Caleb H Farny, **Greg T Clement**; *Harvard Medical School, Radiology, Boston, MA, USA.*

P3E063-07 Strong Spatially Localized Loss in High Intensity Ultrasound from Nonlinear Propagation

Gianmarco Pinton, Gregg Trahey; *Duke University, Biomedical Engineering, Durham, NC, USA.*

P3F067-04 Co-optimization of CMUT and Receive Amplifiers to Suppress Effects of Neighbor Coupling Between CMUT Elements

Sigrid Berg, Trond Ytterdal, **Arne Rønnekleiv**; *Norwegian University of Science and Technology (NTNU), Dept. of Electronics and Telecommunication, Trondheim, Norway.*

P3F068-05 Accurate Modeling of Capacitive Micromachined Ultrasonic Transducers in Pulse-echo Operation

Mujdat Balantekin, **Levent Degertekin**; *Georgia Institute of Technology, George W. Woodruff School of Mechanical Engineering, Atlanta, GA, USA.*

P3F069-06 Analytically Calculating Membrane Displacement and the Equivalent Circuit Model of a Circular CMUT Cell

Ira Wygant, **Mario Kupnik,** Butrus Khuri-Yakub; *Stanford University, USA.*

P3F070-07 New Technique for Fabrication of High Frequency Piezoelectric Micromachined Ultrasonic Transducers

T. Pedersen[1], R. L.-Moeller[2], K. Hansen[3], T. Zawada[3], E. V. Thomsen[1]; *[1]Technical Univ. of Denmark, Denmark, [2]InSensor A/S, Kvistgaard, Denmark, [3]Ferroperm Piezoceramics A/S, Kvistgaard, Denmark.*

P3G074-04 Thick Film Based Piezoelectric Micromachined Ultrasonic Transducers

T. Hedegaard[1], T. Pedersen[1], R. L.-Moeller[2], K. Hansen[3], T. Zawada[3], E. V. Thomsen[1]; *[1]Technical Univ. of Denmark, Department of Micro and Nanotechnology, Lyngby, Denmark, [2]InSensor A/S, Kvistgaard, Denmark, [3]Ferroperm Piezoceramics A/S, Kvistgaard, Denmark.*

P3G075-05 Characterization of PZT ferroelectric thin films prepared by a modified sol-gel method

Daqun Bao, Yi Zhang, **Hang Guo**; *Xiamen University, Pen-Tung Sah MEMS Research Center, Xiamen, Fujian, China.*

P3G076-06 Properties of PSN-PMnN -PZT ceramics synthesized by B-site precursor method and their applications on therapeutic transducers

C.-C. Tsai[1], T.-K. Chiang[1], Sheng-Yuan Chu[2]; *[1]Southern Taiwan University, Electronic Enginneering, Tainan, Taiwan, [2]National Cheng Kung University, Electrical Engineering, Tainan.*

P3G077-07 Investigations on the effects of ultrasonic vibrations in the wire drawing

Hai-qun QI, Jiang-bo Yuan, Tao Xie; *Harbin Institute of Technology, Harbin, Heilongjiang, China.*

P3H081-02 High Temperature Elastic Constants of Langatate from RUS Measurements up to 1100°C

P. Davulis[1], A. Shyam[2], E. Lara-Curzio[2], M. P. da Cunha[1]; *[1]Univ. of Maine, Electrical and Computer Engineering, Orono, ME, USA, [2]Oak Ridge National Laboratory, High Temperature Materials Laboratory, Oak Ridge, TN, USA.*

P3H082-03 Investigation of high-pressure transitions in castor oil using SH surface acoustic waves

Piotr Kiełczynski[1], Marek Szalewski[1], Aleksander Rostocki[2], Jan Gladysz[2]; *[1]Polish Academy of Sciences, Institute of Fundamental Technological Research, Warsaw, Mazowsze, Poland, [2]Warsaw University of Technology, Faculty of Physics, Warsaw, Poland.*

P3H083-04 Phase transitions in Ti-Ni alloys – acoustic studies

A. Abramovich[1], E. Charnaya[2], S. Vasilkov[2], S. Belyaev[3], A. Volkov[3]; *[1]St. Petersburg Univ. of Plant Polymers, Russian Federation, [2]St. Petersburg State Univ., Russian Federation, [3]St. Petersburg State Univ., St. Petersburg, Russian Federation.*

P3H084-05 Step-by-step Electrospray Deposition of Organic Sensitive Film for Surface Acoustic Wave Sensor

T. Tsuji[1], T. Hotta[2], Y. Yamamoto[1], K. Kobari[1], S. Akao[3], N. Nakaso[4], K. Yamanaka[1]; *[1]Tohoku Univ., JST, CREST, Japan, [2]Tohoku Univ., Japan, [3]Toppan Printing Co., Ltd., Tohoku Univ., JST, CREST, Japan, [4]Toppan Printing Co., Ltd., Japan.*

P3I088-04 Acoustic Resonance Spectroscopy of Nanoceramics

Natalia Polzikova[1], Georgy Mansfeld[1], Sergey Alekseev[1], Iosif Kotelyanskii[1], Sergeev Fedor[2]; *[1]Institute of Radioengeneering and Electronics RAS, Moscow, Russian Federation, [2]Moscow Institute of Physics and Technology, Moscow, Russian Federation.*

P3I089-05 The Analysis of Overtone Vibrations of Quartz Crystal Resonators with Lee Plate Theory

Ji Wang, Rongxing Wu, Jianke Du; *Ningbo University, Mechanics and Engineering Science, Ningbo, Zhejiang, China.*

P3I090-06 A Theoretical Time-Course Model of Acoustic Tweezers: Pulse-Wave Mode

Shih-Tsung Kang, Hsiao-Chun Ting, Chih-Kuang Yeh; *National Tsing Hua University, Department of Biomedical Engineering and Environmental Sciences, Hsinchu, Taiwan.*

3:00 pm – 4:30 pm | POSTER --- Wednesday, November 5, 2008 | 2nd and 3rd Floor

Session: P3J. BAW & MEMS Materials & Devices

Chair: **Dave Feld**
Avago Technologies, USA

P3J091-01 Piezoelectrically Actuated Micromechanical BAW Resonators

Piia Rosenberg, Antti Jaakkola, James Dekker, Arto Nurmela, Tuomas Pensala, Tommi Riekkinen, Tomi Mattila, Ari Alastalo; *VTT Technical Research Centre of Finland, Finland.*

P3J092-02 Design of Experiments: a powerful tool for the numerical design of BAW filters

Alexandre Reinhardt[1], Sylvain Giraud[2], François de Crecy[1], Stéphane Bila[2], Enrique Iborra[3], Marc Aïd[1]; *[1]CEA-Leti Minatec, Grenoble, France, [2]XLIM-CNRS, Limoges, France, [3]Universidad Politécnica de Madrid, Madrid, Spain.*

P3J093-03 BAW Resonators with Iridium Electrodes for Digital Wireless Transmissions

E. Iborra[1], M. Clement[1], J. Olivares[1], S. González-Castilla[1], N. Rimmer[2], A. Rastogi[2], B. Ivira[3], A. Reinhardt[3]; *[1]Univ. Politécnica de Madrid, Grupo de Microsistemas y Materiales Electrónicos, Madrid, Spain, [2]Aviza Tecnology Inc., Newport, United Kingdom, [3]CEA-Leti Minatec, Grenoble, France.*

P3J094-04 Spurious Vibration Suppression by Film Thickness Control for FBAR

Shoichi Tanifuji, Yuji Aota, Hiroshi Oguma, Suguru Kameda, Tadashi Takagi, Kazuo Tsubouchi; *Tohoku University, Research Institute of Electrical Communication, Sendai, Miyagi Prefecture, Japan.*

P3J095-05 AlN Film using Low Temperature MOCVD Process for FBAR

Yuji Aota, Shoichi Tanifuji, Hiroshi Oguma, Suguru Kameda, Tadashi Takagi, Kazuo Tsubouchi; *Tohoku Univ., RIEC, Japan.*

P3J096-06 Lithium niobate surface structuration for phononic crystal fabrication

Sarah Benchabane[1], Laurent Robert[1], Gwenn Ulliac[2], Samuel Queste[1], Abdelkrim Khelif[1], Vincent Laude[1]; *[1]FEMTO-ST, MN2S, Besançon, France, [2]FEMTO-ST, DOPMD, Besançon, France.*

P3J097-07 Picosecond Ultrasonics: the prefered tool for BAW characterization

Patrick Emery[1], Arnaud Devos[1], Pascal Ancey[2]; *[1]CNRS, IEMN, UMR CNRS 8250, Villeneuve d'Ascq, France, [2]STMicroelectronics, CROLLES, France.*

P3J098-08 Wireless Temperature Sensing using a Passive RFID Tag with Film Bulk Acoustic Resonator

Jon Hong Lin[1], **Yao Huang Kao**[2]; *[1]National Chiao-Tung University, Communication Engineering, Hsinchu, Taiwan, [2]Chung Hua University, Communication Engineering, Hsinchu, Taiwan.*

P3J099-09 Anchor limited Q in Flexural Mode Resonators

Joshua Lee, **Jize Yan,** Ashwin Seshia; *University of Cambridge, United Kingdom.*

Session: P3K. Thin-Film & Propagation

Chair: **Don Malocha**
University of Central Florida, FL, USA

P3K100-01 Zero LSAW Propagation Loss in a SiO_2/Periodic Grating/$LiTaO_3$ Structure

Sergey Biryukov[1], Manfred Weihnacht[2]; *[1]IFW Dresden, Dresden, Germany, [2]INNOXACS, Dippoldiswalde, Germany.*

P3K101-02 Propagation of the Anisimkin Jr.' Plate Modes in $LiNbO_3$ and Te Single Crystals

Yuri Gulyaev; *Institute of Radio Engineering and Electronics of RAS, Russian Federation.*

P3K102-03 Piezoelectric and elastic properties of SNGS and STGS single crystals at elevated temperatures

A. Sotnikov[1], **H. Schmidt**[2], K. Suschke[2], M. Weihnacht[3], M. Hengst[4], J. Götze[4]; *[1]A.F.Ioffe Physical-Technical Inst., Russian Federation, [2]IFW Dresden, Germany, [3]InnoXacs, Germany, [4]Freiberg Univ. of Mining and Tech., Germany.*

P3K103-04 Leaky-SAW Properties on Reverse-Proton-Exchanged $LiNbO_3$

Shoji Kakio, Hidenori Shimizu, Yasuhiko Nakagawa; *University of Yamanashi, Kofu, Japan.*

P3K104-05 Application of Compound Matrices to the Study of SAW and PSAW Propagation in Layered Structures

V. I. Fedosov[1], Y. V. Gulyaev[1], I. I. Chusov[1], M. Benetti[2], **D. Cannatà**[2], F. Di Pietrantonio[2], E. Verona[2]; *[1]Russian Academy of Sciences, Russian Federation, [2]Italian National Research Council, "O.M. Corbino" Institute of Acoustics, Rome, Italy.*

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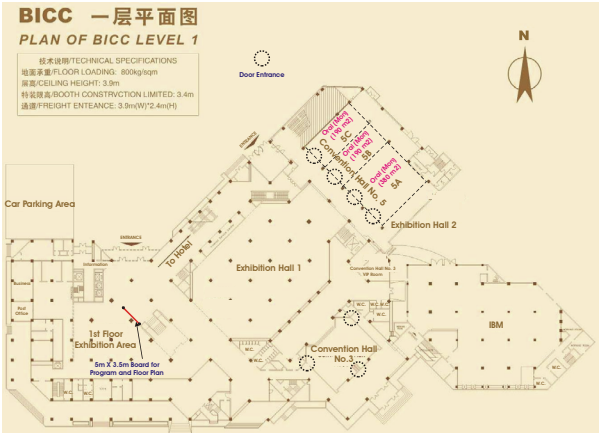
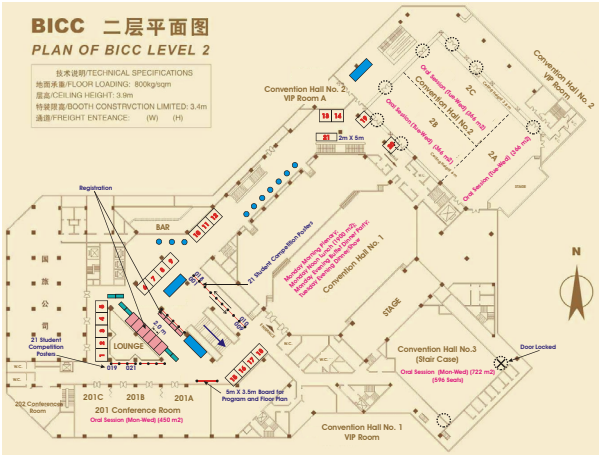
BICC Floor Plan

First Floor of BICC:



Second Floor of BICC:



Third Floor of BICC:

Condensed Program of 2008 IEEE International Ultrasonics Symposium

Beijing, China, November 2-5, 2008

Room Names:

Hall 1: Convention Hall No. 1 (2nd Floor)
Hall 2: Convention Hall No. 2 (2nd Floor)
Hall 3: Convention Hall No. 3 (1st&2nd Floors)
Hall 5: Convention Hall No. 5 (1st Floor)
Room 201: 201 Conference Room (2nd Floor)
Room 305: 305 Conference Room (3rd Floor)
Room 307: 307 Conference Room (3rd Floor)
Room 308: 308 Conference Room (3rd Floor)
Room 311: 311 Conference Room (3rd Floor)

Color Codes:

Group I: **RED:** Medical Ultrasound; Group II: **ORANGE:** Sensor, NDE; Group III: **GREEN:** Physical Acoust Group IV: **Violet:** Microacoustics; Group V: **BLACK:** Transducers; **(1I):** 1 Invited Talk; **(2I):** 2 Invited; **(3I):** 3 Invited

SATURDAY, Nov. 1	Condensed Program --- 2008 IEEE International Ultrasonics Symposium, Beijing, China, November 2-5, 2008
	Symposium Registration *(2nd Floor Foyer), 6:00 p.m. – 9:00 p.m.*

SUNDAY, Nov. 2	Short Courses *(with Refreshments on 3rd Floor Foyer from 10:00 a.m. - 10:20 a.m.; 3:00 p.m. - 3:20 p.m.; and 8:00 p.m. - 8:20 p.m.)*		
	Symposium Registration *(2nd Floor Foyer), 7:00 a.m. – 7:00 p.m.*		
	Short Courses *(8:00 a.m.-12:00 noon)*:	**Short Courses** *(1:00 p.m.-5:00 p.m.)*:	**Short Courses** *(6:00 p.m.-10:00 p.m.)*:
	Course 1A: Med. Ultrason. Transducers (311A/B)	**Course 1B:** Ultrason. Elastography (311A/B)	**Course 1C:** Ultrason. Contrast Agents (311A/B)
	Course 2A: Ultrason. Imag. Systems (307)	**Course 2B:** Acoust. Microscopy (307)	**Course 2C:** CUMTs (307)
	Course 3A: Photoacoustic Imag. & Sensing (308)	**Course 3B:** Therapeutic Ultrasound (308)	**Course 3C:** Time Reversal Acoustics (308)
	Course 4A: Tissue Motion & Blood Flow (311C)	**Course 4B:** SAW Modeling Techniques (311C)	**Course 4C:** Acoust. Near-Field Imag. (311C)

Condensed Program (Monday)

Monday (November 3, 2008):

MONDAY, Nov. 3	Hall 3	Rooms 201A/B/C	Hall 5A	Hall 5B	Hall 5C	Room 307
	Symposium Registration *(2nd Floor Foyer), 7:00 a.m. – 6:00 p.m.* **Exhibits** *(2nd Floor Foyer), 8:00 a.m. – 5:00 p.m.*					
8:00 a.m. – 10:00 a.m.	**Plenary Session** *(Convention Hall 1 - For All Attendees)*					
10:00 a.m. – 10:30 a.m.	**Refreshments** *(Locations: 2nd and 3rd Floor Foyers)*					
10:30 a.m. – 12:00 noon	**1A.** Blood Flow Measurements **(1I)**	**2A.** Tissue Characterization	**3A.** Imaging Systems and Methods	**4A.** Transducer Materials Characterization	**5A.** Material Properties I **(2I)**	**6A.** Thin Film & Device Characterization
12:00 noon – 1:30 p.m.	**Lunch** *(Convention Hall 1 - For All Attendees)*					
1:30 p.m. – 3:00 p.m.	**1B.** High-Frequency and Small Animal Imaging **(1I)**	**2B.** Bone I	**3B.** Ultrasonic Motors - Technology Advances	**4B.** Single Crystals I **(2I)**	**5B.** NDE Signal Processing	**6B.** Advances in Materials & Propagation
3:00 p.m. – 4:30 p.m.	**Posters** *and* **Refreshments** *(Locations: 2nd and 3rd Floor Foyers)*					
	PS. Student Competition **P1A.** Photoacoutic Imag. **P1B.** Medical Beamforming	**P1C.** Medical Imaging **P1D.** Medical Signal Proc. **P1E.** Transducer Modeling	**P1F.** Piezo. & Ferro. Mat. **P1G.** Sonar Propa. & Det. **P1H.** Ultrason. Motor Appl.	**P1I.** Phononic Crystals II **P1J.** NDE Signal Proc. **P1K.** NDE Applications	**P1L.** BAW Modeling **P1M.** Microwave Acoust. Devices for Wireless Front Ends	
4:30 p.m. – 6:00 p.m.	**1C.** Shear Wave and Shear Strain Imaging **(1I)**	**2C.** Bone 2	**3C.** Phononic Crystals I - Bandgap & Focusing	**4C.** Single Crystal II **(1I)**	**5C.** Bulk Acoustic Wave Sensors **(1I)**	**6C.** SAW Devices
6:30 p.m. – 10:00 p.m.	**Buffet Dinner Party** *(Convention Hall 1 - For All Attendees)*					

Condensed Program (Tuesday)

Tuesday (November 4, 2008):

TUESDAY, Nov. 4	Hall 3	Rooms 201A/B/C	Rooms 305A/B/C	Hall 2A	Hall 2B	Hall 2C
	Symposium Registration *(2nd Floor Foyer), 7:00 a.m. – 5:30 p.m.* **Exhibits** *(2nd Floor Foyer), 8:00 a.m. – 5:00 p.m.*					
8:30 a.m. – 10:00 a.m.	**1D.** Elasticity Imaging: Applications	**2D.** Contrast Agents: Targeting & Therapeutics	**3D.** Medical Signal Processing I	**4D.** cMUTs	**5D.** Industrial Measurement	**6D.** Bulk Wave Resonators - I **(1I)**
10:00 a.m. – 10:30 a.m.	**Refreshments** ***(Locations: 2nd and 3rd Floor Foyers)***					
10:30 a.m. – 12:00 noon	**1E.** Clinical Cancer Imaging **(3I)**	**2E.** Arrays and Therapeutic Devices	**3E.** Medical Signal Processing II	**4E.** cMUT Modeling	**5E.** Flow Measurements **(1I)**	**6E.** Ultrasonic Wave Propagation - I
12:00 noon – 1:30 p.m.	**Lunch** ***(On Your Own)***					
1:30 p.m. – 3:00 p.m.	**1F.** 3-D Elasticity Imaging **(1I)**	**2F.** Ultrason. Mediated Delivery of Therap. Agents	**3F.** Photoacoustic Imaging	**4F.** SAW vs BAW **(1I)**	**5F.** Acoustic Imaging and Microscopy	**6F.** Ultrasonic Motors & Droplet Processing
3:00 p.m. – 4:30 p.m.	**Posters** ***and*** **Refreshments** ***(Locations: 2nd and 3rd Floor Foyers)***					
	P2A. Blood Flow **P2B.** Improv. Contrast Imag. **P2C.** Contrast Agents: M/C.	**P2D.** Bioeffects **P2E.** High Freq. Tech. **P2F.** 3D / Cardiac Imag.	**P2G.** Med. Imag. Transd. **P2H.** Nonlinear Propag. **P2I.** Ultrason. Wa. Prop. II	**P2J.** Ultrason. Mot. Innov. **P2K.** Acoust. Wave Sen. **P2L.** Acoust. Imag. Sig. Proc.	**P2M.** NDE Methods **P2N.** Thin Film & Device Fab. **P2O.** SAW Simulation	**P2P.** Sen. & ID SAW Tags
4:30 p.m. – 6:00 p.m.	**1G.** Visco-elasticity	**2G.** Therapeutic Ultrasound	**3G.** High Frequency Transducers	**4G.** Acoustic MEMS Devices **(1I)**	**5G.** NDE Phased Arrays	**6G.** Material Properties II - Crystals & Composites
6:30 p.m. - 10:00 p.m.	**Banquet Dinner and Shows** ***(Convention Hall 1 - For All Attendees)***					

Condensed Program (Wednesday)

Wednesday (November 5, 2008):

WEDNESDAY, Nov. 5	Hall 3	Rooms 201 A/B/C	Rooms 305 A/B/C	Hall 2 A	Hall 2 B	Hall 2 C
	Symposium Registration *(2nd Floor Foyer), 7:00 a.m. – 1:00 p.m.* Exhibits *(2nd Floor Foyer), 8:00 a.m. – 12:00 noon*					
8:30 a.m. – 10:00 a.m.	**1H.** Cardiac Imaging **(1I)**	**2H.** Cavitation Therapy	**3H.** Transducer Modeling and Design	**4H.** Device Modeling	**5H.** Material and Defect Characterization	**6H.** Optical & RF Ultrasonic Effects
10:00 a.m. – 10:30 a.m.	**Refreshments** *(Locations: 2nd and 3rd Floor Foyers)*					
10:30 a.m. – 12:00 noon	**1I.** Cardiovascular Imaging **(1I)**	**2I.** Therapeutic Monitoring and Guidance	**3I.** Polymers for Transducers	**4I.** BAW Materials & Devices	**5I.** Wave Propagation **(1I)**	**6I.** Ultrasonic MEMS **(1I)**
12:00 noon – 1:30 p.m.	**Lunch** *(On Your Own)*					
1:30 p.m. – 3:00 p.m.	**1J.** Cardiovascular Elastography	**2J.** Beam Forming Algorithms and Strategies	**3J.** Microbubbles: Theory and Characterization	**4J.** Multilayer SAW Propagation **(1I)**	**5J.** Liquid and Gas Sensing	**6J.** Energy Harvesting & Magnetoelectrics **(2I)**
	Posters *and* **Refreshments** *(Locations: 2nd and 3rd Floor Foyers)*					
3:00 p.m. – 4:30 p.m.	**P3A.** Tiss. Charac. - Tech. **P3B.** Tiss. Charac. - In Vivo **P3C.** Elastography	**P3D.** Therapeutic Ultrasound Applications **P3E.** Therapeutic Ultrasound Technologies **P3F.** MUT Transducers		**P3G.** Material Characterisation and Fabrication Tech. **P3H.** Material Properties III **P3I.** Bulk Wave Effects & Devices		**P3J.** BAW & MEMS Mat. & Dev. **P3K.** Thin-Film & Propag.
4:30 p.m. – 6:00 p.m.	**1K.** Vector Velocity Imaging	**2K.** Adaptive Beam Forming	**3K.** Contrast Agent Imaging: Methods & Appl.		**5K.** Acoustic Wave Sensors	**6K.** Medical Arrays

	Hall 3	Rooms 201A/B/C	Rooms 305A/B/C	Hall 2A	Hall 2B	Hall 2C
Sizes of Rooms:	530 m2 *(1st & 2nd Floors)*	450 m2 *(2nd Floor)*	450 m2 *(3rd Floor)*	366 m2 *(2nd Floor)*	366 m2 *(2nd Floor)*	366 m2 *(2nd Floor)*

		Hall 5A	Hall 5B	Hall 5C	Room 307
Note: Roughly 1 square meter (m2) per person.	**Sizes of Rooms:**	About 380 m2 *(1st Floor)*	About 190 m2 *(1st Floor)*	About 190 m2 *(1st Floor)*	185 m2 *(3rd Floor)*

Notes

Notes

Program Book

2008 IEEE INTERNATIONAL ULTRASONICS SYMPOSIUM (IUS)

Beijing International Convention Center (BICC)
November 2-5, Beijing, China

Forbidden City

Temple of Heaven

Summer Palace

The Great Wall

UFFC

IEEE