Volume 24, Issue 3 Fall 2014

ultrasonic industry association
UIA
powering sound ideas

Vibrations

Powering Sound Ideas

UIA 44: 2015 Symposium in Washington DC USA

The 2015 Symposium will be held at the Georgetown University Hotel and Conference Center 20 - 22 April. *The symposium that UIA last held in Washington DC in 2008 drew the largest number of participants we have had in the past decade*, as Dan Cotter, UIA President noted in announcing the symposium plans.

UIA 44 features both medical and industrial sessions. There will be workshops on ultrasonics, and a poster session featuring the work of researchers in the field.

A tour of the FDA Laboratories will also be part of the symposium. With FDA's involvement in the approval of ultrasonic medical devices, this tour will help companies preparing to get their newest ultrasonic products to market.

Topics to be covered include 3D printing of ultrasonic devices and intellectual property protection

Ron Manna is the Symposium Chair, with **Alan Winder** and **Robert Muratore** as Medical Session Co-Chairs, **Dominick DeAngelis** and **Alexy Peshkovsky** as Industrial Session Co-Chairs.

Invited speakers include:

- **Laurence Needleman, MD,** Director, Ultrasound Division, Co-Director, Vascular Center, Thomas Jefferson University
- **Flemming Forsberg, PhD,** Director of Ultrasound Physics, Division of Ultrasound, Dept. of Radiology, Thomas Jefferson University
- **Levon Nazarian, MD** Professor of Radiology, Program Director, Diagnostic Radiology Residency, Vice Chair for Education, Thomas Jefferson University
- **Kenji Uchino, Ph. D., MS, MBA,** Professor, Electrical Engineering, Director, International Center for Actuators and Transducers, The Pennsylvania State University

Exhibits by companies that offer products and services to the ultrasound industry will be also be showcased.

Inside...

Invited Paper: Overview of Muscular-Skeletal Ultrasound

Levon Nazarian, MD
Professor of Radiology, Program Director, Diagnostic Radiology Residency, Vice Chair for Education, Thomas Jefferson University

Advanced Topics: Interventional; Peripheral Nerves; Hernias

Both high level and recreational athletes are subject to many injuries, both acute and chronic. Many of these injuries are handled conservatively, and others need immediate surgical attention. Ultrasound affords the opportunity to perform real time dynamic imaging for diagnosis. Furthermore, ultrasound guided percutaneous interventions can be performed to treat the symptoms. Therapeutic injections of corticosteroid and local anesthetic can be performed under ultrasound guidance for a wide range of symptomatic conditions such as tendinitis, tenosynovitis, arthritis, and bursitis. Real time ultrasound can monitor the installation of the medication to make sure it is reaching the proper location. Ultrasound guided aspiration can be performed for symptomatic ganglion cysts, liquefying hematomas, and Baker's cysts. Calcific tendinitis can be treated by needle fragmentation and/or lavage. Tendons that have undergone mucoid degeneration, or tendinosis, can be fenestrated using the needle tip, a technique best documented for chronic tennis elbow. Other ultrasound-guided therapeutic approaches for tendinosis include injections of autologous blood, platelet rich plasma, and hypertonic dextrose solutions. Ultrasound guided minimally invasive therapies have also become commonplace for plantar fasciitis, trigger finger, and carpal tunnel syndrome. The procedural guidance made possible by ultrasound has opened up many new horizons in the treatment of musculoskeletal disorders. Future improvements recommended for enhancing the clinical benefits of IMUS will be presented.

Invited Paper: Vascular Ultrasound: Current State, Current Needs, Future Directions

Laurence Needleman, MD
Director, Ultrasound Division, Co-Director, Vascular Center, Thomas Jefferson University

Vascular ultrasound diagnoses a diverse number of diseases. In the venous system, venous ultrasound is the gold standard. Acute DVT and chronic venous insufficiency affects millions of lives. The diagnoses rely on accurate gray scale ultrasound and spectral Doppler measurements. The chronic venous examination is time consuming and difficult for sonographers and needs methods to simplify data acquisition and analysis. The diagnosis of acute DVT is straightforward but better means to grade older clot and recurrent DVT is needed. Methods such as elastography are being considered for these patients.

In the arterial system the examinations are relatively mature. Deep arterial circulations such as the renal arteries are among the hardest areas to scan. Improved imaging will help keep this examination competitive with CT and MR techniques.

The diagnosis of cervical internal carotid stenosis is straightforward. Nonetheless, correlation with "gold standard" angiography has led some to downplay the technique but all angiographic measurements have errors. Doppler has some major advantages, e.g. absence of radiation, repeatability, portability but inconsistencies in interpretation abound and have restricted some from embracing this test. A move to a national standard is under discussion. Despite carotid stenosis being one of the first vascular beds to be investigated by duplex techniques, the techniques are ready for change. Velocity measurement that take into account the various vectors of flow, flow measurements, or new gray scale measurements (perhaps with contrast agents or new gray scale modes which encode moving blood) may change the way we diagnose ICA stenosis in the future.

Please see the Call for Papers on page 10 to submit your abstract for consideration for either the industrial or medical sessions. Abstracts are due by 5 December.

UIA 44: Workshops - Tuesday 21 April 2015

Tuesday morning, 21 April, will feature two workshops. One is ***Sonic and Ultrasonic Measurements in Oil and Gas Well Logging*** presented by **Eric Molz, Meggitt Sensing Systems**.

Acoustics is vital in many phases of the oil and gas well industry, from seismic field exploration to hydrocarbon well production and recovery. One area of this industry, oil and gas well logging, has many unique acoustic, and specifically ultrasonic, measurements.

Our second workshop will be presented by Eberhard Hennig from PI Ceramic, Germany, on **Designing with Piezoceramics Workshop.**

Eberhard Hennig

This workshop will present an overview of PI's rule-of-thumb design guidelines for piezoceramics with specific application examples tailored to power ultrasonic transducers and sensors. It will also include an update on PI's latest lead-free piezoceramic materials with detailed comparisons versus leaded materials on their performance and application differences. The workshop will include step-by-step examples on applying the technology along with applications information such as material selection, preload, heat-treatments, electrodes, surface finish/flatness, power handling, autoclave cycling and vibrational life.

The Sonic and Ultrasonic Measurements in Oil and Gas Well Logging workshop will present the methods of sound generation, reception, and interpretation standard to oil and gas well logging.

Invited Paper: Loss Mechanism and High Power Characterization

Kenji Uchino
ONR Global-Asia, Office of Naval Research, Tokyo, Japan; & Int'l Center for Actuators & Transducers, The Penn State University, USA

With accelerating the commercialization of piezoelectric actuators and transducers, the main research focus seems to be gradually shifting from the "real parameters" such as larger polarization and displacement, to the "imaginary parameters" such as polarization/displacement hysteresis, heat generation, and mechanical quality factor which is originated from three loss factors (dielectric, elastic and piezoelectric losses). Reducing hysteresis and heat generation, and increasing the mechanical quality factor to amplify the resonance displacement are the primary target. Our group has been working on the loss characterization of piezoelectrics for 30 years. In 1980s, we primarily worked on the hysteresis measurement by using a pseudo-DC technique. Loss could be measured under high voltage and stress level, but the experimental set-up was bulky and expensive. In 90s, we proposed a simple method with a pulse drive. Though the set-up was inexpensive and could be used for high voltage level, elastic loss could only be measured with low accuracy. In recent several years we are focusing on a new resonance AC drive method. This technique is basically a precise admittance measurement around both the resonance and antiresonance peaks, from which we obtain the mechanical quality factors for the resonance (Q_A) and the antiresonance (Q_B). From the values of Q_A, Q_B, and the electromechanical coupling factor k, we can obtain all three dielectric, elastic and piezoelectric loss factors precisely. The measurement simplicity and accuracy of this methodology are very attractive, and our proposal will be widely accepted as a standard method in the piezoelectric actuator community. In this paper, a novel method for determining the piezoelectric losses is proposed; (1) method how to realizing symmetrical admittance/impedance curves for obtaining the mechanical quality factors Q_A and Q_B around the resonance and antiresonance frequencies, and (2) process how to calculate the piezoelectric three losses from the values of Q_A and Q_B. Our discussion in this paper is limited for samples of k_{31}, k_{33}, and k_{15} modes.

We will also discuss the differences between the fundamental phenomenology of piezoelectric and magneto-strictive materials, including the loss mechanisms, and also discusses the composite effect between these two materials. From a long experience in teaching smart materials, the author discovered that many of the junior professors in materials, electrical engineers and mechanical engineers misunderstand the basic concepts/definitions of professional terminologies in smart materials. This presentation is not focused on providing up-to-date developments, but on re-learning the basics correctly.

Available online at www.sciencedirect.com

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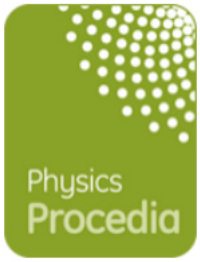
Physics Procedia 00 (2014) 000–000

www.elsevier.com/locate/procedia



Physics Procedia

Sponsors

Picture your technical paper in the UIA Symposium 2015 proceedings, along with the best of presented topics in Industrial and Medical Ultrasonic sessions, a focused expanded volume that may be referenced and relied upon by researches in our field for years to come.

The 43rd Annual UIA Symposium heralded the inaugural publication of a formal proceedings of technical papers presented with Physics Procedia. The publication captures current research and industrial implementation of new ultrasonic technologies in a free access (open access) platform for researchers worldwide. Elsevier Physics Procedia articles are indexed and published in Science Direct, in perpetuity (without restriction in time). There are direct indexes and search tools to Ultrasonic and Ultrasound topics from a number of society proceedings and journals, so researchers have an effective starting point to build on the shoulders of others.

In our process for publication at UIA, the highest level of quality of publications is ensured by guest editors selected for a particular symposium, leveraging a network of experienced researches for peer review. Instructions for authors, examples, and templates will be provided in advance of future symposiums to streamline the process. Given our diverse community of international contributors, authors can be assured editors will review and offer recommended corrections to language, again ensuring consistency and quality of finished work. Industrial sponsors are essential to support the publication and are acknowledged for their contribution.

In 2014, Ethicon Endosurgery, a JnJ company and Integra LifeSciences sponsored the proceedings, and in 2015 at least three sponsors are sought. High visibility publication in ScienceDirect.com, Elsevier's premier online platform under Physics Procedia enables timely dissemination of research in the field of high powered ultrasound, and UIA is extremely grateful to the contributing authors, editors, and sponsors.

Watching the evolution of industrial and academic contributions to the annual symposium has been tremendous and the forum is absolutely bolstered by an outlet for publication. Many presenters look to publication as the culmination of their contribution, and their institutions and companies value formalization and peer review. We are a community of researchers in UIA, and please join us in making the Washington DC proceedings special.

Procedia is an online collection of high quality conference proceedings in over 20 subject categories.

Free access to all users

Short lead times to publication

Physics Procedia offers a single, highly recognized platform where conference papers can be hosted and accessed by millions of researchers. Authors then know where to go to keep abreast of the latest developments in their field.

Can Power Ultrasonic Devices be Printed?

Andrew Mathieson, Margaret Lucas
School of Engineering
University of Glasgow

Abstract –

Components of ultrasonic devices are generally manufactured through machining processes such as turning or milling. These processes are known as subtractive manufacturing as the process removes material from the work-piece until the final shape has been achieved.

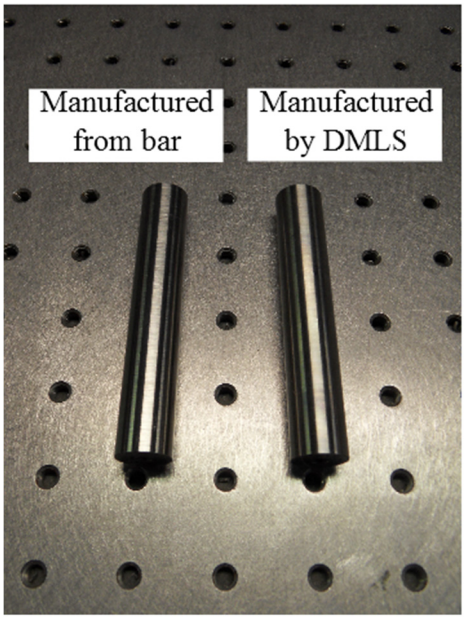
However, these processes do not have the capability of producing geometric shapes, such as internal cavities or complex slots and flutes. To overcome these limitations, this study explores the possibility of manufacturing an ultrasonic component from a titanium alloy (Ti6Al4V) through an additive manufacture (AM) process, direction metal laser sintering (DMLS). A relatively young manufacturing process, DMLS builds components through a process that deposits a thin layer of metal powder on to a substrate where it is melted by a high intensity focused laser beam before cooling and fusing into a solid part.

This study will report on the capability of current design techniques to accurately predict the modal parameters of an AM ultrasonic part.

Furthermore, the vibrational responses of the ultrasonic part are directly compared with a conventionally manufactured Ti6Al4V part. This will determine whether losses exhibited by the AM part are comparable or significantly differ between the parts.

Andy Mathieson

Can 3-D printing be used to print Ultrasonic Devises?



Invited Paper: Intellectual Property Considerations

A Perspective on U.S. Patent Law, Trends, and Strategies

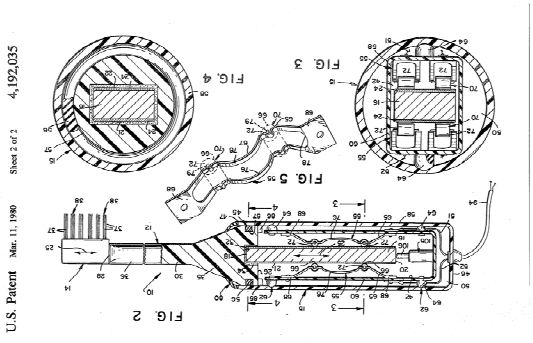
This presentation will provide an overview of the different types of intellectual property with a focus on U.S. patent law, trends, and strategies. Topics to be covered: trade secrets, trademarks, copyrights, procuring patents, patent infringement, strategies for avoiding patent infringement, provisions of the America Invents Act (AIA), as well as filing and prosecution strategies post-AIA. Questions to be answered include differences between a provisional and a non-provisional patent application; how to protect trade secrets; how to identify who is an inventor; when should you retain patent counsel; and when do you need a non-disclosure agreement.

The Work of Lewis Balamuth, Claus Kleesattel and Arthur Kuris

David Wuchinich, Director, Modal Mechanics will discuss these ultrasonic pioneers during UIA44

In 1934, in the midst of the Great Depression, Lewis Balamuth presented his Ph.D. thesis at Columbia University introducing the use of ultrasound to measure the elastic constants of crystals. In 1942 he was dismissed as a professor of physics at City College, accused of Communist sympathies. The government never did the commercial ultrasonic business a greater favor. Forced to support himself sans academia, Balamuth began a career in ultrasound that resulted in over 90 patents, ranging from ultrasonic machining to plastic welding and surgical tissue dissection and cell disruption. Twelve of those patents disclose technology still in use today, forming the foundation of very substantial businesses. Supported by the financial backing obtained by Arthur Kuris and the technical innovations of Claus Kleesattel, these accomplishments were among the first successful commercial endeavors in high power, low frequency ultrasound.

Lewis Balamuth



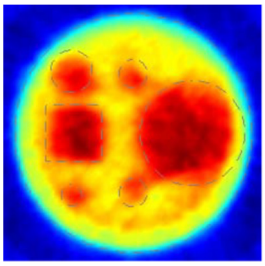
Patent drawing by Arthur Kuris for the ultrasonic toothbrush

Update: Ultrasound Computed Tomography

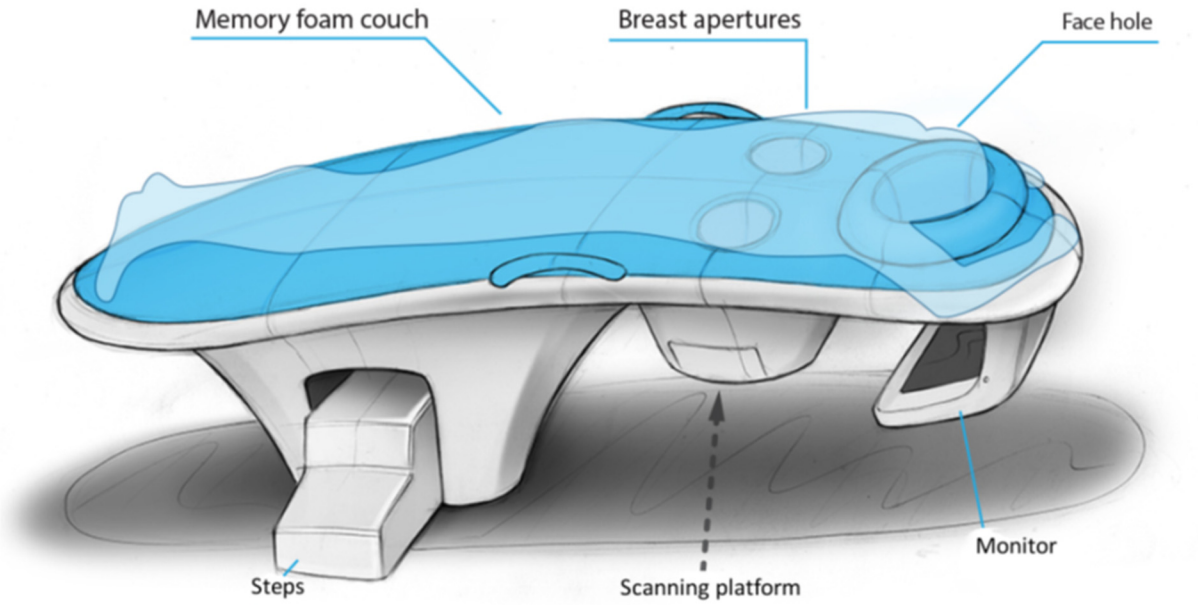
A collaborative project is underway at the UK National Physical Laboratory, Teddington, to achieve clinical proof-of-concept of a novel form of ultrasound imaging for screening of breast disease.

Present state-of-the-art for breast screening is mammography, which requires ionizing radiation (and so limits repeat screening, or therapy tracking), provides only qualitative data, and is uncomfortable for the patient. Ultrasound scanning is an alternative, and commercial systems exist; however, in contrast to conventional devices, which use established piezoelectric methods, NPL's approach is to develop further its patented *pyroelectric* ultrasound measurement method. This works by measuring the energy transmitted through the scanned breast through its conversion to heat, and so offers the advantage of being phase-insensitive, and hence less susceptible to image artefacts, crucial in carrying out lesion diagnosis. Once established in clinical practice, the method should build a database of breast tissue acoustic attenuation values, paving the way for automated scanning based on truly quantitative data. The pyroelectric imaging concept was presented in detail by Dr Bajram Zeqiri during the 42nd UIA Symposium in Florida, Spring 2013.

NPL is partnering with University Hospitals Bristol, DesignWorks and Precision Acoustics, and early clinical tests of the developed platform are expected to take place in 2016.



Pyroelectric-derived image of tissue mimic with built-in features



Artist's impression of scanning platform

President's Message

As we transition to later stages of Fall, I find it amazing that we are culminating contributions to the Madrid 2014 Symposium in an extended volume of technical papers, while receiving excellent abstracts for Washington DC UIA Symposium 2015: a continuum of important research is streaming from our field of ultrasonics. The inaugural volume of UIA proceedings in Elsevier's Physics Procedia, discussed in this Vibrations newsletter, is nearly ready for publication with guest editors Margaret Lucas and Enrique Riera working hard to ensure the quality of the technical papers.

The keynote speakers for the next symposium were determined early by experienced conference organizers, supporting early dissemination of the topics, and extended abstracts contained in this issue of Vibrations are exceptional. Many of us in Ultrasonics R&D are interested in improved simulation and modeling beyond simply attaining a resonant frequency, as losses, power, errant modes, damping characteristics, and stability are a part of the design of the more specialized transducers, complex contoured horns, and control systems used in emergent applications. Industrial Session keynote presentations planned target these concerns.

The contributions planned in the Medical Session are inspiring interest in systems that advance the standard of care and aid in curing people. Workshops planned are focused on understanding the role of piezoelectric ceramic properties in operation of stack transducers, and other presentations suggest a link to vital areas in gas and oil well inspection, necessary to improve reliability of inevitable drilling given environmental concerns. High powered ultrasound and its novel application

play a vital role in modern industrial, green, and life sciences.

On a more historical note, Dave Wuchinich, submitted an abstract, highlighted on page 6 that discusses the work of Balamuth, Kleesattel, and Kuris. We often reference these researchers and relook at their papers and patents, as the systems we use and develop devices for in surgical applications directly evolved from Cavitron. I had no idea of the breath of work in ultrasound of these contributors. Of course, Dave himself has a long association and major contributions to ultrasonic aspiration systems used in surgery, and derived platforms are used in more than one hundred thousand surgeries per year in tumor, diseased tissue, and bone aspiration every year. Dave later forwarded an article from a 1952 in Life magazine discussing ultrasonic machining of hard materials by Cavitron. It will be a fascinating contribution to the Washington DC Symposium.

Our UIA Three-Year planning committee has just begun meeting and formulating initiatives that will aid in keeping members connected throughout the year, including a mentorship program coupling new and energetic members with more senior members addressing objectives of the UIA organization. Initiatives include a Web Forum for discussing technical problems proposed by members and an eventual mid-year hybrid Web and site mini-conference of presentations and a workshop. It is exciting to see the interaction of new members on these endeavors. Please join in the excitement, and formulate your plan for attending Washington DC UIA Symposium 2015.

R&D is interested in improved simulation and modeling beyond simply attaining a resonant frequency, as losses, power, errant modes, damping characteristics, and stability are a part of the design of the more specialized transducers, complex contoured horns, and control systems used in emergent applications.

Sunita Chauhan Receives Hind Rattan Award

Sunita Chauhan, member of the UIA Board of Directors, will receive the coveted ***Hind Rattan*** award from the Indian government in January 2015.

The **Hind Rattan** (Hindi phrase translated to English as "Jewel of India") is one of the highest Indian diasporic awards granted annually to non-resident Indian citizens (NRIs) by the NRI Welfare Society of India, an organization under the umbrella of the Government of India. The award is granted at the Society's annual congress, held in conjunction with national Pravasi Bharatiya Divas celebrations. The award ceremony is attended by senior members of the Government of India and of the Supreme Court of India. The number of awardees varies each year, but is generally about 25 to 30. Criteria for award selection are not published by the Society; award selections are made among the Society leadership and awardees are invited to attend the conference in New Delhi to accept their awards.

Sunita is currently at Monash University in Clayton, Victoria, Australia where she is helping to develop a newly formed consortium on MedTech, a consortium of Australian industries with local universities as a cradle for joint translation research to fund and nuture joint PhD students for innovative ventures.

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Georgetown University Conference Center
Washington, DC, USA
20 - 22 April 2015

2015 UIA Symposium Call for Papers

The Ultrasonic Industry Association invites you to submit a 200 word abstract for consideration of presentation or poster on 20 - 22 April at its 44th Annual Symposium in **Washington DC, USA** at the Georgetown University Conference Center. Plan now to join UIA for this international conference featuring the best of ultrasound from around the world. For more information, please go to http://www.ultrasonics.org
Please note the appropriate category and preferred format of your proposed presentation:

☐ **Industrial Applications**: NDE, Measurements, Cleaning, Atomization, Materials Processing, Effluent Processing, Food Processing, Joining and Fastening, Welding and Cutting, Sonochemistry, Underwater Applications, Remote Sensing, Transducer Design/ Materials.

☐ **Medical**: Surgical, Therapeutic, HIFU/LIFU, Bioeffects, Tissue Characterization, Bio-Acoustic Microscopy, Transducer Design/Materials

Preferred Presentation Method: ❑ **Paper Presentation** ❑ **Poster Session**

Deadline: 5 December 2014

Important Information: Presentations will be no longer than 25 minutes; final abstracts must be submitted via e-mail. The session chair will contact you directly to discuss your proposed presentation. Bio-sketches and presentation suitable for distribution to participants on a USB memory device at the symposium must be submitted to the UIA office no later than **30 March 2015**. Final papers will be due shortly after symposium, at a date to be announced. **Accepted presenters receive a discounted registration fee.**

Please type or print your information below

Presentation Title _____

Authors _____

Presenters _____

Main Contact

Name _____

Address _____

City _____ State/Prov _____ Country _____

Phone _____ Email _____

Symposium Chairs:

Ronald Manna, Misonix ▸ rmanna@misonix.com

Alan Winder, Acoustical-Sciences ▸ a.winder@acoustic-sciences.com

Medical Session Chair: Robert Muratore, Quantum Now LLC ▸ wave@quantumnow.com

Industrial Session Chair: Dominick DeAngelis, Kulicke & Soffa ▸ ddeangelis@kns.com

Please submit this form to uia@ultrasonics.org

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UIA 44: Washington, DC USA

The Georgetown University Hotel and Conference Center, the location for UIA 44, is nestled among the historic streets of Georgetown. The serene location, away from the clamor of downtown, coupled with its comfort and elegance will allow our participants the opportunity to indulge in the history and culture of this charming corner of Washington, DC.

As the preferred hotel for Georgetown University, our location offers 146 guest rooms with outstanding amenities and services expected by today's traveler.

Easily accessible from the area airports, Union Station and major highways, our hotel offers proximity to fine restaurants and upscale boutiques. Plan to arrive early or to stay after UIA 44 to visit Washington's many museums and historical locations. You can travel using the Georgetown University Transportation Shuttle to go to the Rosslyn and Dupont Circle Metro stations.

Traveling to Washington
When planning your flight to DC, here are estimated taxi fares:

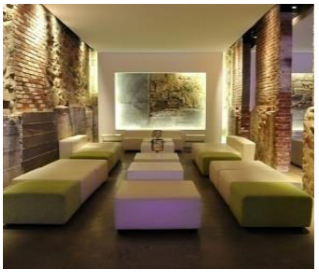
- Regan National (DCA) $20/one way
- Dulles International (IAD) $51/one way
- Baltimore Washington (BWI) $65/one way - or take the MARTA train to Union Station ($6/one way) where the fare is just $15/one way.

The Georgetown University Hotel and Conference Center is located at the heart of the Georgetown University campus inside the Thomas and Dorothy Leavey Center.

Tuesday Evening: L2 Lounge & Monument Tour

One favorite feature on the UIA Symposium is our Tuesday evening event which provides a relaxed atmosphere for networking in a unique location.

This year we will visit the L2 Lounge, an elegant venue in the heart of Georgetown. Designed by Lehman, Smith, McLeish, the lounge inserts an elegant modern aesthetic into a 100 year old commercial space. The result is a loft-like gallery effect where attendees will be able to enjoy conversations, dinner and the unique ambiance that is not open to the public. After dinner, we will view Washington monuments by moonlight. This evening is included in full registration.



Additional tickets may be purchased for guests at the time of registration.

44th Annual UIA Symposium Registration
20 - 22 April 2015
Georgetown University Conference Center
Washington, DC, USA

First Name

Last Name, Designation

Nickname for badge

Position/Title

Employer

Employer City/State

For mailing purposes, I prefer my
- ❑ **Home address as follows:**
- ❑ **Work address as follows:**

Address

City, State, Zip, Country

Phone

E-mail

Please register me in the following manner:

Full Registration *includes, Tuesday evening event - please check boxes to confirm your participation*

❑ Full conference registration

❑ YES, I will attend Tuesday Evening

Select for which category you are registering:

❑ Member ❑ Nonmember ❑ Exhibitor

❑ Speaker ❑ Student ❑ Sponsor

Students presenting posters on Tuesday may also attend either the Monday or Wednesday session at no additional charge. Please select which additional day.

Daily Registration

Tuesday does NOT include Tuesday Evening Event

Select which day:
- ❑ Monday
- ❑ Tuesday
- ❑ Wednesday

Select your category:
- ❑ Member
- ❑ Nonmember
- ❑ Student (see sidebar)

Sponsorship

❑ Level _____

Special Events

❑ Tuesday Evening Event # of Tickets ____

Fee Schedule	By 12/31	1/1/15 & after
Full conference (Monday-Wednesday)		
Full conference - Member	$790	$950
Full conference - Nonmember	$910	$1,050
Student - Full conference	$475	$475
Daily fees (Monday, Tuesday or Wednesday)		
Daily Rate - Member	$295	$325
Daily Rate - Nonmember	$335	$370
Student - Daily	$175	$175
Student - Poster Presenter	$75	$75
Exhibit Levels - Members		
I - 1 table, 1 full registration	$1,795	$1,975
II - 1 table, 2 full registrations	$2,470	$2,670
Exhibit Levels - Non members		
I - 1 table, 1 full registration	$1,995	$2,195
II - 1 table, 2 full registrations	$2,790	$3,070
Sponsorship Levels		
I - Refreshment Sponsor	$1,500	$1,500
II - Reception Sponsor	$1,995	$1,995
III - Lunch Sponsor	$2,750	$2,750
IV - Proceedings Sponsor	$2,000	$2,000
Special Event		
Tuesday Evening Event	$235	$245

NOTE: Tuesday evening is included in the FULL conference registration fee. Additional tickets may be purchased for companions.

Payment Summary *FIN for voucher use only: 13-6130371*

Registration/Sponsorship/Exhibit $_____

Tuesday Evening Event $_____

TOTAL DUE $_____

Method of Payment

❑ Payment enclosed. Make check payable to UIA.

❑ Charge: ❑ MasterCard ❑ Visa ❑ Amex

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Date ___ / ____ Code: _____

Person's name on card: _____

❑ My billing address is the address used for my registration

Signature

You may register on-line at www.ultrasonics.org

MAIL registration form and payments to UIA, 11 W Monument Avenue, Ste 510, Dayton, OH USA 45402

FAX registration form to +1.937.586.3699

Exhibit and Sponsor Information
2015 UIA Symposium

20-22 April 2015, Washington, DC, USA

Georgetown University Hotel & Conference Center

UIA offers companies access to key influencers in the international ultrasonic community at their annual symposium. This year, we offer both exhibit and sponsorship opportunities:

Sponsorship Levels

Level One - Refreshment sponsorship - $1,500 includes recognition in symposium literature, and logo on refreshment table;

Level Two - Reception sponsorship - $1,995 includes recognition in symposium literature, and logo on buffet table;

Level Three - Lunch sponsorship - $2,750 includes recognition in symposium literature, and signage at lunch;

Level Four - Proceedings sponsorship—$2,000 includes recognition in symposium literature, and recognition in the printed and electronic proceedings.

"The UIA Symposium was very informative and interactive. Our company found it to be a valuable experience for showcasing our technology and interacting with key people in the Ultrasonic Industry. Half of the audience were already customers, and the other half were potential customers with applications for our technology."

Eric Lawrence, Polytec Inc.

Please use the form attached or contact UIA for more information

Exhibit Opportunities

Level One Exhibitor – UIA Corporate or Sustaining Member $1,795 - includes recognition in symposium literature, opportunity to make a 6 minute presentation to participants; literature only table and one full symposium registration;

Level One Exhibitor – Non Member $1,995 - includes recognition in symposium literature, opportunity to make a 6 minute presentation to participants; literature only table and one full symposium registration;

Level Two Exhibitor – UIA Corporate or Sustaining Member $2,470 - includes recognition in symposium literature, opportunity to make a 6 minute presentation to participants; literature only table and two full symposium registrations.

Level Two Exhibitor – Non Member $2,750 - includes recognition in symposium literature, opportunity to make a 6 minute presentation to participants; literature only table and two full symposium registrations.

All fees are if paid prior to 19 December, see contract…

P O Box 2307
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ultrasonic industry association
UIA
powering sound ideas

44th Annual UIA Exhibit Form 20 – 22 April 2015

Georgetown University Hotel & Conference Center Washington, DC USA

Please complete the contact information below. This person will receive all exhibitor correspondence.

Company Name: _____

Contact Person: _____

Title: _____

Address: _____

_____

City: _____ **State:** _____ **Zip:** _____

Phone: _____ **Fax:** _____

E-mail: _____

Second Registrant:

EXHIBIT SCHEDULE

Monday, 20 April 2015
8:00 Exhibit Set-up
9:00 – 4:00 Exhibit Tables

Tuesday, 21 April
8:00 – 12:00 Exhibit Tables

Wednesday, 22 April
8:00 – 3:30 Exhibit Tables

PAYMENT INFORMATION

Sponsor *please indicate the sponsorship level* PLEASE SPECIFY THE EVENT YOU WISH TO SPONSOR
_____ $_____

Exhibit I – includes one registration
BEFORE 19 December ❒ Member - $1,795 ❒ Non-Member - $1,995
1 January and after ❒ Member - $1,975 ❒ Non-Member - $2,195
$_____

Exhibit II – includes two registrations
BEFORE 19 December ❒ Member - $2,470 ❒ Non-Member - $2,790
1 January and after ❒ Member - $2,670 ❒ Non-Member - $3,070

TOTAL $_____

Table Top Exhibit includes exhibit table, company identification sign, PLUS REGISTRATION(S)

METHOD OF PAYMENT:
❒ Check Enclosed *(Make checks payable to UIA)*
❒ Purchase Order number or attach copy _____
❒ Please charge my credit card: ❒ MasterCard ❒ VISA ❒ Amex

Person's name on card: _____

Card # | | | | | | | | | | | | | | | | Exp / |

We agree to comply with all the Rules and Regulations as provided and to the conditions under which displays in Georgetown University Hotel & CC may be held. We understand that space is available on a first-come, paid-in-full basis.

_____
Authorized Signature Date

Return completed contract to: UIA • PO Box 2307 • Dayton, OH • 45401-2307
Phone: 937.586.3725 • Fax: 937.586.3699

Ultrasonic Industry Association

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UIA is the international business forum for users, manufacturers, and researchers of ultrasonics. Our members use acoustic vibrations to improve materials, industrial processes, and medical technology. We call this "powering sound ideas."

Let's work together to power your sound ideas. Contact a member consultant or company through our Referral Network, learn about ultrasonics with our online primer, or meet industry leaders at our next symposium.

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