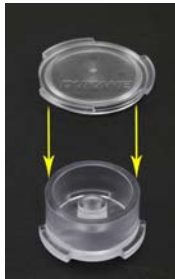


Vibrations

UIA 42: 2013 Symposium Report

UIA held its 42nd Symposium at the Hilton Orlando Lake Buena Vista, a stone's throw from Downtown Disney, from April 22 – 24th 2013. Over 60 attendees networked with leading-edge experts from industry and healthcare, and contributed to a stimulating technical programme, albeit whilst their families enjoyed the warm Florida sunshine!

One of our generous sponsors, Meggitt Sensing Systems, kicked us off with a continental breakfast on our first day, and paved the way for Leo Klinstein to tell us about some objective welding



tests carried out with a new Dukane test part – the iSTeP – which utilises a two-piece cylindrical geometry, and includes port access for leak testing, and a tab system for systematic pull tests.

An ongoing challenge for the transducer manufacturing community is the worldwide drive to reduce lead usage, and this was considered in detail by Eberhard Hennig from PI Ceramic. He described the state of the art in lead-free materials, with BNT-BT (a polycrystalline of bismuth, sodium and barium titanate) and KNN (sodium potassium niobate) materials showing promise for transducers and actuators respectively. Dominick DeAngelis (Kulicke and Soffa) then took us through the challenges in designing pre-load bolts for ultrasonic

transducers used in wire and ball bonding applications, concluding that eliminating parasitic modes at the design stage (even using simple 1-D models) significantly improves system performance and longevity.

Continued on page 2



**Invited speaker
Alfredo
Vazquez
Carado**

You'll want to know:

- Call for Papers for UIA 43 is on page 10
- Exhibitor/Sponsor information is on page 11
- Registration form is on page 15
- Positions available from Integra on page 16

UIA 43: 2014 Symposium - CSIC, Madrid, Spain

UIA 43 will be held on the campus of CSIC in Madrid, Spain. "We are looking forward to a very productive symposium with input from throughout Europe, the United States, UK, Australia and more. This year, we hope to welcome our ultrasonic colleagues from Latin and South America as well," noted UIA President

Mark Hodnett as he announced the location of the next UIA Symposium.

Margaret Lucas, Professor of Ultrasonics, Head of Systems, Power & Energy Division, University



of Glasgow, Scotland and **Enrique Riera**, Head of the Department of Sensors and Ultrasonics Systems, CSIC, Madrid, Spain, will serve as co-chairs.



For more information about UIA 43, go to page 6.

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UIA 42: 2013 Symposium Report, continued



Leo Klinstein, Dukane

Present innovations
enable power
conversion within very
small volumes



Jay Sheehan,
JFS Engineering

Pedro Acevedo was first up after refreshments, updating us on his previous work in investigating crosstalk issues in medical ultrasound transducers, with some interesting trends observed in frequency convergence when examining the problem using Finite Element modelling. Taking us up to lunch, Wanda Wolny talked in detail about Meggitt's innovative and versatile PiezoPaint™ technology, with potential applications for in-fabric motion sensing (e.g. for machine operators) and filter cleaning.

The afternoon session commenced with our Industrial Session invited speaker, Alfredo Vazquez Carado, from Micromechatronics Inc, a spin-off from Penn State University. In a fascinating and stimulating talk, Alfredo explained the design characteristics and applications of piezoelectric transformers for power conversion. The technology dates back to the 1950's, but has been optimised and harnessed to great effect in recent years with volume applications such as laptop monitor backlighting. Present innovations enable power conversion within very small volumes ($>1\text{kW/in}^3$), developed using Finite Element analysis in much the same way as transducer designs, and ultra high voltage (100 kV) DC-DC converters.

UIA President Mark Hodnett (NPL, UK) then described the positive results from a collaborative European project which has designed and realised 20 kHz batch and flow sonoreactors. These deliver controlled doses of acoustic cavita-

tion, which are then used to influence crystal populations in honey, and so extend its shelf life. Our final presentation of the day was from Jessica Riedl (Iowa State), who described her research into polymer film welding using ultrasonics, with potentially wide application in the food packaging sector. She showed that bond (seal) strength correlated well with increases in horn output, and will now move on to burst testing, important for all potato chip packaging!

Our Monday Reception Event followed (*sponsored by Sono-bond*) and delegates enjoyed local and international beers and cuisines, and stimulated discussion on technology trends either side of the Atlantic.

Tuesday 23rd Workshop and Standards session opened with Jay Sheehan (JFS Engineering) updating his popular tutorial on transducer design and modelling, with particular focus on using ANSYS Workbench and ADPL to translate ideas and manufacturers' specifications into realistic system predictions, using his own wealth of valuable experience. Following this, a special presentation was made to Alan Broadwin (Ainslie), whose many years of experience in the ultrasonics industry have contributed greatly to the work and progress of the UIA (see Vibrations Summer 2012). UIA Vice President Mark Schafer presented Alan with a lifetime Honorary UIA Membership, and a commemorative plate. Alan then gave a brief history of the evolution of standards in

power ultrasonics, paving the way for our next two speakers.



Mark Schafer presents lifetime UIA Membership to Alan Broadwin

Mark Schafer then retook the stage in his role as Convenor for International Electrotechnical Commission Technical Committee 87, Working Group 7 (IEC TC87 WG7), to talk about how the work and framework of IEC supports good manufacturing practice worldwide, and moreover, how the development of existing and new standards relies on inputs from, and directly affects outcomes of research, manufacturing and academia. WG7 focuses specifically on Ultrasonic Surgical Equipment (including lithotripsy), where existing standards are limited, for example, to longitudinal mode surgery devices. Mark then explained how to get involved through National Committees.

Bajram Zeqiri (NPL, UK), Convenor of IEC TC87 WG3 (High Power Transducers) then described the history of attempting to generate standards in the area of industrial ultrasound, with specific focus on ultrasonic cleaning. As far back as the 1970's, IEC piloted a pro-

UIA 42: 2013 Symposium Report, continued

gramme of measurements amongst cleaning system manufacturers, in response to user needs for an objective assessment of cleaning performance, and the development of a quantitative cavitation parameter, but to date, no standards yet exist. The advent of more refined methods for detecting and characterising cavitation in a meaningful way has re-energised this area, and a recent survey carried out through the National Committees demonstrated the need for a revised Technical Report, addressing fundamental acoustic parameters. (See page 7 for more information). The structure of the updated document will be agreed over the coming year, and a WG3 meeting is planned in Madrid during UIA 43.

Following refreshments, sponsored generously by Sonobond, Onda Corporation's Petrie Yam described progress made in developing systematic methods for characterising ultrasonic cleaners, building perfectly on the material presented by Bajram Zeqiri. Using a wideband acoustic sensor and a prototype scanning rig, Onda are able to generate spatial maps of ultrasonic cleaners used in conventional and megasonic frequency ranges, beginning to address the needs of industry.

Our invited presenter for Tuesday, providing a stimulating departure from the demands of standardisation, was Laura Kloepper (University of Hawaii). She spoke about the fascinating topic of adaptive focusing by marine mammals, with particular focus on her research with bottlenose dol-



Laura Kloepper

phins and the false killer whale, which appears to use a fat-filled 'melon' structure in the skull as an acoustic lens. Laura deployed an array of hydrophones, to detect consistent beam geometries generated by the whales when presented with a systematic set of echolocation targets, of different sizes, and at different positions. It is apparent that the whales are able to generate broadband pulses (tens of kHz), and may even adjust the target focal region according to target distance. Laura's present topic of research is examining how bats echolocate in air, for which she is adopting an analogous sensor array strategy, in the form of a 224-element MEMS array.

Concluding the day's formal presentations was the poster session, with research as diverse as thermochromic materials as visualisation tools (Bajram Zeqiri) and biosensing MES resonators (Ivan Rivera). The winning poster, with a cash prize sponsored by Ethicon (A Johnson and Johnson company) was on Low loss VHF and UHF Filters Based on Piezoelectrically - and Capacitively - Transduced Resonators by I-Tsang Wu, Julio Dewdney and Jing Wang, RF-MEMS Transduc-

ers Group, Center for Wireless and Microwave Information Systems, University of South Florida

And so onto Disney! Part of the UIA 42 delegate programme was for a "behind the scenes" tour of selected highlights of the Disney campus, which gave a brief insight into the business philosophies, branding and innovation that 'generate the magic' for so many guests each year. And it turns out that there really is a whole 'downstairs' to the Magic Kingdom. From there, we journeyed to the House Of Blues at Downtown Disney, for a very convivial Symposium dinner.

Wednesday 24th was our Medical Sessions day, with Jay Sheehan at the Chairman's helm, and our first presenter was Rainer Schmitt (Sonavation). Rainer has a prestigious track record in ultrasound research, and his latest work was fascinating: the use of acoustic impedance changes, caused by structures and features, when a fingerprint is pressed onto a piezoelectric sensor, or in other words, acoustic impedigraphy. Advanced prototypes have been successfully demonstrated, and the technology is now ready for full biometric application.

Bajram Zeqiri (NPL, UK) then spoke about some of his pioneering work in using novel materials to development ultrasonic sensors based on the pyroelectric effect, rather than the piezoelectric effect which is the conventional application. Pyroelectric sensors are phase-insensitive, meaning that they



Integrating energy density probe, piloted by IEC in the 1980's

The advent of more refined methods for detecting and characterising cavitation in a meaningful way has re-energised the development of a quantitative cavitation parameter



Bajram Zeqiri (NPL, UK), Convenor of IEC TC87 WG3 (High Power Transducers)

UIA 42: 2013 Symposium Report, continued



Tony Jun Huang, The Pennsylvania State University, invited speaker

Tony explained the principles and challenges behind Acoustic Tweezers: the use of surface standing acoustic waves to manipulate particles.

potentially allow ultrasound images to be obtained without speckle artefacts. This novel imaging approach was successfully demonstrated to image test phantoms tomographically, with the next step being to image breast tissue. Our popular Unconference session followed, where delegates took advantage of the extended networking opportunities to build new strategic relationships, and debate the

finer points of transducer modelling .

After refreshments, we were delighted to welcome our guest speaker, Tony Jun Huang. Fast paced and packed with impressive examples – including a micro-fluidic version of one of Roberto Carlos' free kicks – Tony explained the principles and challenges behind Acoustic Tweezers: the use of surface standing waves to manipulate particles. Tony

has developed devices for blood separation, 2D focusing and even a method to generate liquid crystal optical shutters, all using sound. Following lunch, Jing Wang gave a talk on VHF and UHF filters, based upon piezo resonators, which allow GHz frequency filtering of electrical signals to be carried out, effectively using micro-mechanical motion. Next up was Eric Lawrence (Polytec) who brought the audience up to date with the state-of-the-art capabilities provided by laser Vibrometry. He showed specific examples of therapeutic ultrasound transducer field measurements, CMUT characterization, and Lamb wave NDT, and a new vibrometer variant with a bandwidth in excess of 1 GHz. Concluding our successful Symposium, Andy Mathieson (University of Glasgow, UK) detailed his research in characterising the motion, output and performance of ultrasonic bone-cutting devices, which exhibit strong non-linearities at higher temperatures, and which require careful characterisation to maximise clinical performance.



Eberhard Hennig helps Dominick DeAngelis work out a problem during the Unconference



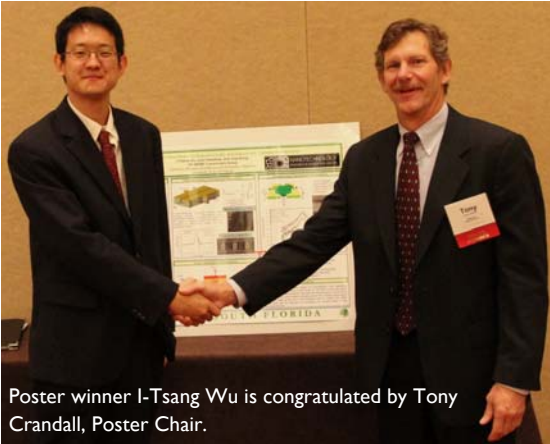
Ron Staut, APC



Poster judges Foster Stulen, Tony Crandall and Wanda Wolny confer before selecting I-Tsang Wu's poster on piezoelectric resonators as UHF and VHF filters as the winner.

UIA President Mark Hodnett wrapped up proceedings, thanking our generous sponsors, and in the exit survey, encouraged delegates to choose their preferences for UIA 43, and the results of the survey, allied to internal discussions, have confirmed our 2014 Symposium for Madrid, April 22-24. And we look forward to seeing you all there.

UIA 42: Photos



Poster winner I-Tsang Wu is congratulated by Tony Crandall, Poster Chair.



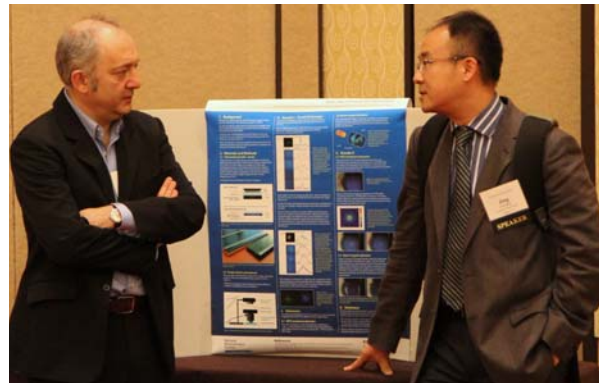
Eric Lawrence, Polytec



Dominick DeAnglis, Kulicke & Soffa Industries, Inc. at work...



... and talking to his new friends, Walt and Mickey



Bajram Zeqiri, NPL, chats with Jing Wang, University of South Florida



Andrew Mathieson, University of Glasgow in Scotland



Cathal Heavey and Brett Merkel, Stryker Instruments



Wanda Wolny, Meggitt

Orlando 2013

Ultrasonics Labs at the Institute for Physics and Information Technologies where the Thursday tour will be: drying, de-foaming, non-linear characterization of transducers, semi-anechoic chamber and more.



Map of Iberamerica

UIA 43: 23 - 25 April 2014 Madrid, Spain

UIA is delighted to go to Madrid, Spain for the 43rd Annual Symposium.

The program will go from Wednesday, 23 April to Friday, 25 April.

Madrid was chosen by the UIA Board of Directors for many reasons:

- As an international association, UIA is committed to

meeting in different locations around the world.

- The support that CSIC (Consejo Superior de Investigaciones Científicas) can provide as a host location includes strong connections throughout Iberoamerica as well as the Ultrasonics Laboratory for the Thursday afternoon tour.
- The ease of travel to Madrid

from Europe, North America and beyond. As a major European air hub, there are direct and inexpensive flights to Madrid from all major cities.

- The meeting facilities are designed well for the UIA Symposium, with our meeting facilities in the historical Residencia de Estudiantes pictured below.

More about CSIC

The Consejo Superior de Investigaciones Científicas (CSIC) (Spanish National Research Council) is the largest public institution dedicated to research in Spain and the third largest in Europe. Belonging to the Spanish Ministry of Economy and Competitiveness through the Secretary of State for Research, Development and Innovation, its mission is to foster, coordinate, develop and promote scientific and technological research, of a multidisciplinary nature, in order to contribute to advancing knowledge and economic, social and cultural development, as well as to train staff and advise public and private entities on this matter.

The CSIC has 135 Institutes or Centres distributed throughout Spain. There is also a delegation in Brussels. It has considerable experience in both participating and managing R&D projects and training grants. Under the 6th Framework Pro-

gramme, the CSIC has signed 418 actions (37 coordinated by the CSIC). Under the 7th Framework Programme, the CSIC has signed 370 actions (35 coordinated by the CSIC).

The CSIC has been the 5th organisation in Europe in project execution and funding in the 6th Framework Programme. The CSIC is the responsible of 20% of international scientific publications of Spain and 30% of the Spanish European patents. It has a staff of more than 10,000 employees, among them 3,200 scientists and about 3,800 pre and postdoctoral researchers. It also manages a range of important facilities; the most complete and extensive network of specialist libraries, and also has joint research units. Its multidisciplinary and multisectorial nature means CSIC covers all fields of knowledge. Its activity covers everything from basic research to technological development.

Below is the charming area where our symposium will be held.



Symposium Schedule

The UIA Symposium will be held Wednesday - Friday, 23 - 25 April at the Residencia de Estudiantes.

We will have full day sessions for Industrial/Research and Medical applications on Wednesday and Friday.

Thursday morning will feature workshops and special exhibitor presentations based on the Pecha Kucha format - 20 slides are presented with 20 seconds

allotted to each slide. These "Lightening Rounds" will enable exhibiting companies to share their information with all the participants. Exhibitor representatives will still have the opportunity to talk with symposium participants and share their literature during our symposium breaks.

The student and researcher poster session will also be held on Thursday. UIA will again present a cash prize to the

winning student poster.

Tours and demonstrations at the CSIC Ultrasonics Laboratory will be Thursday afternoon.

Thursday evening will conclude with a special event for UIA Symposium participants that will feature a quintessential view of Madrid. See below for more information about the Corral de la Moreria.



UIA 43: Madrid
23-25 April 2014

Staying in Madrid: Hotel Hesperia Emperatriz

As we did at both NPL and the University of Scotland in Glasgow, our symposium sessions will not be held in a hotel. However, UIA is arranging for a block of rooms at the Hotel Hesperia Emperatriz in Madrid that is large enough for all our participants to stay in one location.

Room rates are just €85.25

single and €94.05 double. The hotel is just .9 mile / 1.4 km from the auditorium at CSIC - within easy walking distance after the buffet breakfast at the hotel (included in your room rate).

More information about making your room reservation will be available at

www.ultrasonics.org



Thursday Evening: Corral de la Moreria

On Thursday evening, UIA is visiting the Corral de la Moreria, a restaurant which holds one of the most famous and prestigious Flamenco shows in the world.

The evening includes a three course dinner featuring traditional Spanish cuisine. After dinner, you will be treated to a



magnificent show featuring some of the best known Flamenco dancers.

This event is included



in the full registration fees. Tickets may be purchased for your guest when you register for the symposium.

New this year is the opportunity for each exhibiting company to provide a visual overview of their products and services to the entire symposium. ~ showing 20 slides with 20 seconds per slide.

The Department of Sensors and Ultrasonic Systems (DSUS) builds on previous Ultrasonics Laboratory created in 1971 by Prof. Juan A. Gallego-Juárez.

Presently DSUS work is mainly dedicated towards R&D activities.

UIA 43: More About Our Host DSUS

The Department of Sensors and Ultrasonic Systems (DSUS) builds on previous Ultrasonics Laboratory created in 1971 by Prof. Juan A. Gallego-Juárez within the Acoustics Department of the Center for Physics Research (Centro de Investigaciones Físicas, L. Torres Quevedo) at the Spanish National Research Council (CSIC). Following the creation of the Institute of Acoustics, IA (1975), the Ultrasonics Laboratory became one of the three IA research units under the name Structural Research Unit for Ultrasonics ("UEI Ultrasonidos"). In 1994 new CSIC regulations were established and the Research Unit for Ultrasonics was transformed in the Department of Ultrasonic Signals, Systems and Technologies. Finally, in 2013, such Department was integrated in the new Institute for Physics and Information Technologies (DSUS).

Within the Ultrasonics Department the Power Ultrasonics Group (GUP) has been very active throughout decades with a large and recognized experience in the research and development of new power ultrasonic transducers for fluids and multiphase media as well as in ultrasonic processing research. The GUP has been the founder of the spin-off company PUSONICS S.L devoted to the development and commercialization of power ultrasonic technologies for industrial and environmental applications.

Presently DSUS work is mainly dedicated towards R&D activities for the development of ultrasonic sensors, actuators and corresponding electronic systems, including their physical foundations and applications. This work implies carrying out research in advanced technologies under two main research

lines:

- a) Ultrasonic sensors and systems for non-invasive analysis, modeling and testing of media (Low Intensity Ultrasonics).
- b) Ultrasonic systems and actuators for treatment and production of their effects on media. Advanced modeling and design technologies for a variety of applications (Power Ultrasonics)

The aim of the research lines cultivated in the department is to develop new knowledge, models, and effective technological solutions for the analysis of media, materials and structures as well as for the production of permanent effects within them.

Convenor Report

Views of National Committees (NCs) were sought on the future of IEC/Technical Report (TR) 60886 "Investigations on test procedures for ultrasonic cleaners", which had had been published in 1980's. Five options were given, ranging from withdrawal to revision, scoped to include methods of measuring quantities such as the spatial distribution of acoustic pressure using hydrophones.

The consensus was that IEC/TR 60886 should be revised with scope and content expanded to reflect technical progress made over the last

thirty years in test procedures employing devices such as hydrophones and cavitation detectors.

NCs were also requested to nominate to experts to serve on WG3 to contribute both to the revision of 60886 and to consider measurement techniques applicable to a broader range of industrial applications which exploit the occurrence of cavitation. Experts were duly nominated from China, Japan and the US. The structure and scope of the revised document will be discussed at the upcoming October meeting of WG3,

with a target of developing an advanced draft by the end of 2014.

Bajram Zeqiri

September-2013

President's Message

Hot on the heels of a stimulating 42nd UIA Symposium in Orlando, where participant feedback indicated that a European location would be of interest to many of our delegates, I am delighted to say that UIA 43 will be held in Madrid in April 2014. This provides a terrific opportunity to hear about the latest work in industrial and medical ultrasound in Europe, and - in a country with strong links to South America - research and product development from overseas too.

Your post-Symposium feedback was extremely valuable, and told us that some aspects of the Orlando meeting didn't fully meet your expectations. First and foremost, please let me apologise for this, and assure you all that we will work

diligently to provide cutting edge presentations, quality exhibitors and workshop content in Madrid and beyond.

Of course, UIA Symposia are competing with other events in the conference calendar, and so to generate a strong programme in future years, I call upon you, our members and sponsors, to spread the word to your colleagues, collaborators and customers about the unique opportunities for networking and applied science that the UIA Forum provides. This will help generate the stimulus for the wider ultrasound user community to choose to present their new work to the UIA audience, and reap the corresponding benefits. We are now open for abstracts!"



UIA Executive Director Fran Rickenbach confers with important symposium participants.



Mark Hodnett, UIA President, looks forward to the year ahead:

I call upon you, our members and sponsors, to spread the word to your colleagues, collaborators and customers about the unique opportunities for networking and applied science that the UIA Forum provides.

UIA Board of Directors 2013 - 2014

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CSIC, Madrid, Spain

23 - 25 April 2014

2014 UIA Symposium Call for Papers

The Ultrasonic Industry Association invites you to submit a 200 word abstract for consideration of presentation or poster on 23 - 25 April at its 43rd Annual Symposium in **Madrid, Spain** at the CSIC. 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: 31 October 2013

Important Information: Papers 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 2014**. 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:

Margaret Lucas, Professor of Ultrasonics, Head of Systems, Power & Energy Division, University of Glasgow, Scotland ▶ Margaret.lucas@glasgow.ac.uk

Enrique Riera, Head of the Department of Sensors and Ultrasonics Systems, CSIC, Madrid, Spain
▶ enrique.riera@csic.es

Please submit this form to uia@ultrasonics.org

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Exhibit and Sponsor Information

2014 UIA Symposium

23-25 April 2014, Madrid, Spain

CSIC - Madrid, Spain

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 20 December, see contract...

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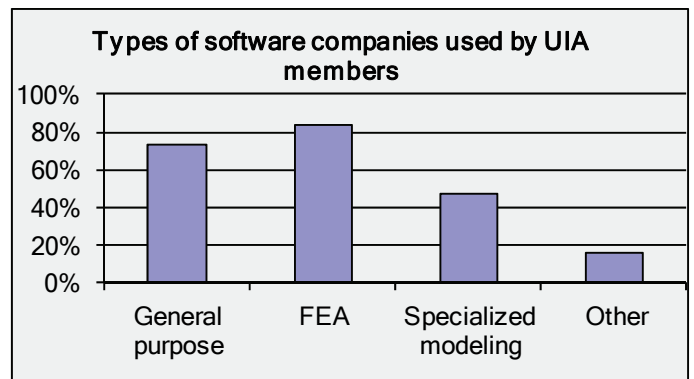
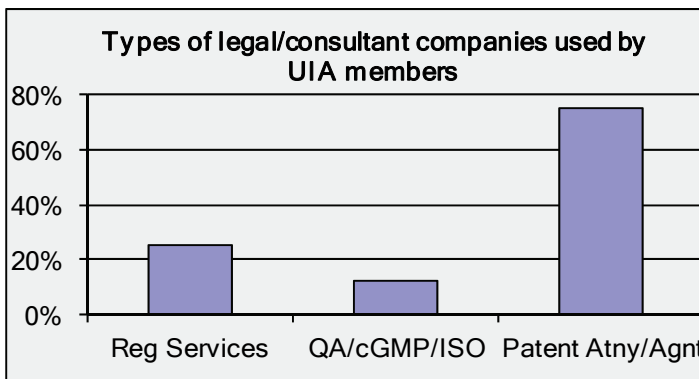
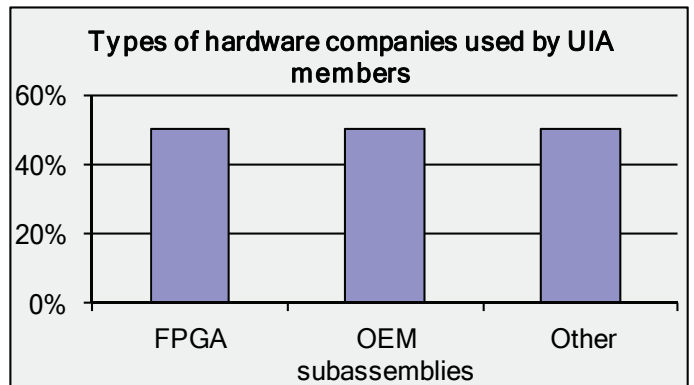
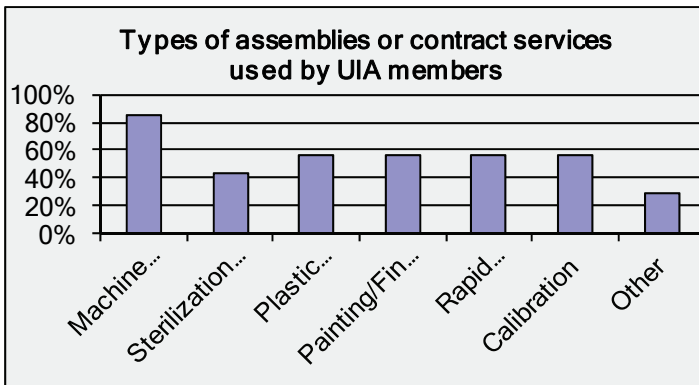
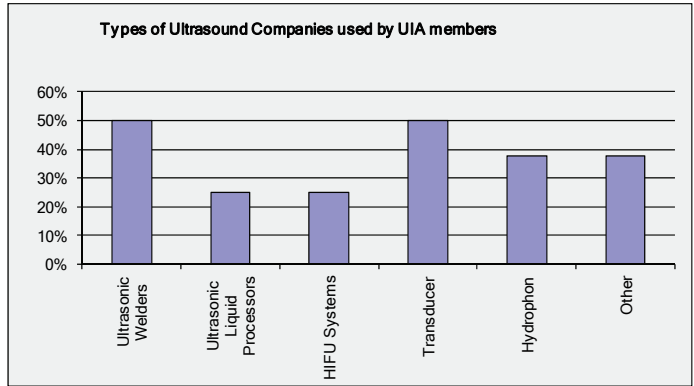
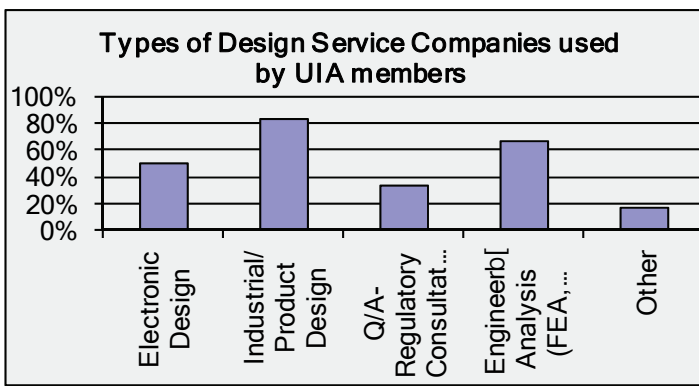
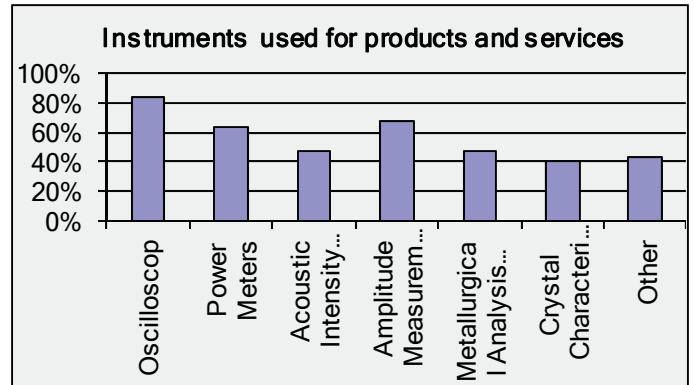
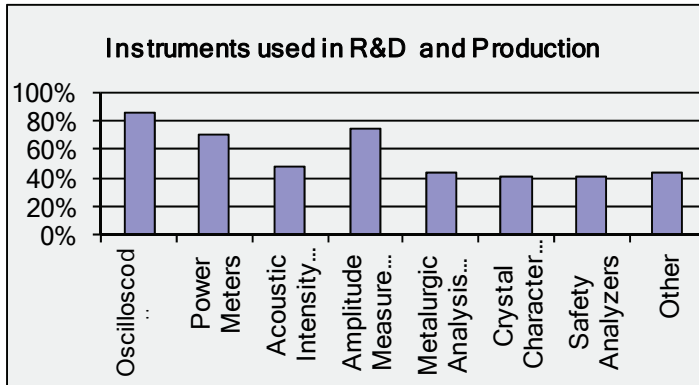


Exhibit and Sponsor Information 2014 UIA Symposium

23-25 April 2014, Madrid, Spain

NEW Exhibit Feature This Year!

Our location at the CSIC Auditorium provides UIA with the opportunity to introduce a new exhibitor program based on the Pecha Kucha concept. Simply, this is what each exhibitor gets:

- Presentation time of 400 seconds to present 20 slides, 20 seconds per each slide
- The presentation may be about any - or all - of your ultrasonic products or services
- The presentation will be made to all of the participants at an appropriate time (if your company is in the medical arena, your presentation will be scheduled the same day as the medical sessions).
- Because the lobby of the auditorium is open to the other CSIC students, displays will be limited to literature displays only.
- Exhibitors also have the opportunity to demonstrate their equipment at the CSIC Ultrasonic Laboratory during the tour on Tuesday afternoon. Space for this demonstration is limited and is available on a first come / first served basis.

WANT TO KNOW MORE ABOUT PECHA KUCHA? GO TO [HTTP://WWW.PECHAKUCHA.ORG/FAQ](http://www.pechakucha.org/faq)

**Please use the form attached or
contact UIA for more information**

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43rd Annual UIA Symposium Registration 23 - 25 April 2014 CSIC, Madrid, Spain

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, Thursday evening event - please check boxes to confirm your participation

- Full conference registration
 YES, I will attend Thursday Evening

Select for which category you are registering:

- Member Nonmember Exhibitor
 Speaker Student Sponsor

Daily Registration

Thursday does NOT include Thursday Evening Event

Select which day: _____ Select your category: _____

- Wednesday Member
 Thursday Nonmember
 Friday Speaker Researcher
 Student (see sidebar)

Sponsorship

Level _____

Special Events

Thursday Evening Event # of Tickets _____

Fee Schedule	By 12/31	1/1/14 & after
Full conference (Wednesday-Friday)		
Full conference - Member	\$875	\$965
Full conference - Nonmember	\$995	\$1,095
Speaker - Full conference	\$750	\$825
Student - Full conference	\$495	\$545
Daily fees (Wednesday, Thursday or Friday)		
Daily Rate - Member	\$295	\$325
Daily Rate - Nonmember	\$400	\$440
Speaker - Daily	\$295	\$325
Student - Daily	\$195	\$195
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

Thursday Evening Event \$180 \$190
 NOTE: Thursday 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 \$ _____
 Thursday Evening Event \$ _____
TOTAL DUE \$ _____

Method of Payment

- Payment enclosed. Make check payable to UIA.
 Charge: MasterCard Visa Amex

Exp

Date ____ / ____ Code: _____

Person's name on card: _____

My billing address is the address used for my registration

Signature

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

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

Ultrasonic Industry Association

11 W Monument Avenue, Suite 510
Dayton, OH USA

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Fax: 937.586.3699
E-mail: uia@ultrasonics.org



**VISIT US AT
ULTRASONICS.ORG**

How can ultrasonics enhance the value of your business?

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.



Integra LifeSciences, a world leader in medical technology, is dedicated to limiting uncertainty for surgeons, so they can concentrate on providing the best patient care. Integra offers innovative solutions in orthopedic extremity surgery, neurosurgery, spine surgery, and reconstructive and general surgery. We presently have two openings in Burlington, Massachusetts, USA, in the desirable greater Boston area.

The **Senior Ultrasonics Engineer** contributes to research and new product development of medical ultrasonic systems thereby advancing the standards of care and ensuring existing platforms support new clinical solutions via continued realization of enabling technologies. Responsibilities include senior technical contribution with knowledge of applied first principles of the physics of ultrasound, utilization of advanced design, analysis, and simulation tools, and multidiscipline practical engineering of ultrasonic surgical instruments. Work in laboratory with biologic tissue and observations in clinical settings and the operating room are necessary.

The **Senior Mechanical Engineer** responsibilities include senior technical contribution with growing knowledge of applied first principles of the physics of ultrasound and demonstrated leadership proficiency in advanced design, finite element analysis, and simulation tools.

We are committed to creating an environment where all employees are valued and respected. We offer a competitive benefits package including 401(K) savings plan with match, medical, vision, dental, life insurance, tuition reimbursement, and employee stock purchase plan. To find out more about our company and the complete job descriptions, visit our website at: <http://www.integralife.com/Careers/>