Volume 23, Issue 3 Late Fall 2013

Vibrations

Powering Sound Ideas

UIA 43: 2014 Symposium Features Full Schedule

With nearly 50 abstracts about the industrial, food handling and medical applications of ultrasonics, UIA 43 promises to offer a wide range of topics. Presentations will be organized into industrial presentations on Wednesday, 23 April and food and medical presentations on Friday, 25 April.

"We are delighted that our Iberamerican colleagues have responded to our Call for Papers with great interest and enthusiasm," noted **Enrique Riera**, Head of the Department of Sensors and Ultrasonics Systems, CSIC, Madrid, Spain, UIA 43 Co-Chair. "We have papers from Brazil, Chile, Mexico, Spain and Uruguay."

"The quality of the abstracts we have received for UIA 43 is outstanding," added **Margaret Lucas**, Professor of Ultrasonics, School of Engineering, University of Glasgow, Scotland.

"With the additional presentations from Australia, Denmark, England, Scotland, Taiwan and United States, the geographic scope of our presentations is significant."

Antonio Mulet, Grupo de análisis y simulación de procesos (ASPA) Departamento de Tecnolgia de Alimentos Universidad Politécnica de Valencia, Spain, is the invited speaker for the Industrial session on Wednesday afternoon.

Thursday will also be a full day, featuring two workshops, presentations by exhibitors and an overview of the 18+ posters in the morning and in-depth poster session and tour of the Ultrasonics Laboratory at CSIC in the afternoon. Thursday evening features dinner at the Corral de la Moreria, with a spectacular Flamenco show following.

The symposium will be held in the Pabellón Central on the campus of CSIC, a lovely 10 minute walk from the NH Hesperia Emperatriz where UIA has reserved a block of rooms for UIA 43 participants.

All the program information and forms are included in this issue.

Register by 31 December to $ave!

You'll want to know:

- Working Groups 3 and 7 will meet during UIA 43 - see page 4
- Exhibitor / Sponsor information is on page 10
- Hotel reservation form is on page 14
- Registration form is on page 15

UIA 43: 2014 Symposium Workshops

Thursday morning, 24 April, will feature two workshops.

Sandy Cochran, Professor of Biophysical Science and Engineering and Head of Division in the Institute for Medical Science and Technology, University of Dundee, will present ***Developments in Piezocrystal Characterisation and Applications***

Mitch Thompson, Chief Technology Officer, Measurement Specialities, USA, will present a workshop on ***Commercial Applications for Piezoelectric Sensors*** (see page 3 for complete descriptions).

These workshops will be followed by exhibitor lightning presentations and then by brief recaps of the posters available for detailed review later in the day.

Inside...

UIA 43: 2014 Invited Speakers

Antonio Mulet

Symposium Presenters will come from :

Australia

Brazil

Chile

Denmark

England

Mexico

Scotland

Spain

Taiwan

Uruguay

United States

Industrial

Exploring the use of air-borne ultrasound in drying process,

J.A. Carcel, J.V. García-Pérez, E. Riera, C. Rosselló, A. Mulet, Grupo de análisis y simulación de procesos (ASPA) Departamento de Tecnolgia de Alimentos Universidad Politécnica de Valencia, ***Spain***

Antonio Mulet is a Chemical Engineer holding PhD from France (IGC Toulouse) and Engineer Degree from USA (MIT). He is author/coauthor of 200 papers and 10 patents.

Active in many research groups both at national and international level, he is the director of the Research Group ASPA (Analysis and Simulation of Agrofood Processes), gathering the activities of seven professors at Universidad Politècnica de Valencia. The group addresses issues linked to processing from environmental impact to process optimization. Interested in process intensification he has been involved in the use of power ultrasound to improve heat and mass transfer processes.

One focus of interest is drying, a process that is highly energy demanding and responsible for a large proportion of industrial energy consumption. In fact he investigated with foods addressing the influence of different factors on the intensifying effect of power ultrasound. Heat and mass transfer in solid-liquid and gas-solid systems have been addressed. Nowadays more attention is paid to low temperature drying processes including atmospheric freeze drying. Another focus of interest are the processes under supercritical conditions where the use of ultrasound has also an interest to inactivate microorganisms. The improvement in these processes not only focuses on energy savings but also on quality aspects linked to bioactivity assurance. Attaining unique applications using power ultrasound was possible because a fruitful close collaboration was established with the Department of Sensors and Ultrasonic System (CSIC, Madrid, Spain).

Medical

Texture and Morphological Parameters to Quantify Breast Lesions in Ultrasonography

Wagner Coelho de Albuquerque Pereira is a Physicist (from Federal University of Ceará), with M.Sc. and D.Sc. degrees in Biomedical Engineering from the Federal University of Rio de Janeiro (UFRJ), ***Brazil***. He is Associate Professor at the Biomedical Engineering Program – COPPE/UFRJ. His main research interest is Biomedical Ultrasound, signal and image processing. He has intense scientific collaboration with Latin-American countries (mainly Uruguay, Mexico and Cuba) as well as with some European countries (mainly Spain, France and Portugal). He is presently the president of the Brazilian Society of Biomedical Engineering (SBEB).

Wagner Coelho de Albuquerque Pereira

Computer-aided Diagnostics (CAD) are systems intended to work as a second opinion to specialists in the definition of breast lesion diagnostics in ultrasound images. The determination of meaningful parameters is not a trivial task. Literature presents 26 parameters related to lesion contour and 1465 parameters related to image texture so it is important to define a method to find the parameters that best discriminate the lesion. The challenge is to have an optimal discrimination with the smallest number of parameters. In this work 641 breast lesion taken from ultrasonography (413 benign and 228 malignant) all histopathologically proven were used to extract all these

Continued on page 5

UIA 43: Thursday Workshops

Developments in Piezocrystal Characterisation and Applications - Prof. Sandy Cochran and Dr. Muhammad Sadiq

The recent development of ternary and doped-ternary compositions of relaxor-based piezocrystals has begun to open up the use of this class of material to high power applications. Two specific binary compositions have been developed since the materials were discovered approximately 20 years ago, lead magnesium niobate and lead zirconate niobate, both combined with lead titanate (respectively, PMN-PT and PZN-PT). These are sometimes called Generation I piezocrystals and have extraordinarily high piezoelectric performance in some configurations but also relatively low phase transition and Curie temperatures. They have more recently been complemented by ternary compositions, called Generation II, for example including lead indium niobate (PIN-PMN-PT), and doped ternary compositions, called Generation III, including manganese (Mn:PIN-PMN-PT). Unlike familiar and fully established piezoceramics which are usually extruded and sintered, the piezocrystals are grown in finite boules and cut to size in specific orientations. This has numerous implications for their cost and their applications. These will be discussed, including the importance of material characterisation, the exploitation of crystal structure and anisotropy, and how the materials can be used in applications.

Sandy Cochran

Sandy Cochran is Professor of Biophysical Science and Engineering and Head of Division in the Institute for Medical Science and Technology, University of Dundee. He has been working in ultrasound for almost 30 years, including applications in non-destructive testing, underwater SONAR and medical imaging and therapy. His strongest focus at present is on the configuration and application of high performance piezoelectric materials in novel clinical applications. This takes in all aspects of device development from virtual prototyping with finite element analysis through to testing on human cadavers and patients. He has published around 200 papers in journals and conference proceedings and has led several large research projects as well as many smaller ones, in the process working closely with many companies from SMEs to multinationals.

Commercial Applications for Piezoelectric Sensors - Mitch Thompson, CTO, Measurement Specialties, Inc.

This workshop will provide an overview of the rang of piezo products sold commercially and focused discussions centered on specific products of interest, including: description of the sensor, sensing material used, operating environment and specifications, physical structure, basic theory of operation, and interesting details highlighting complexities encountered in the design.

Disposable PZT based TEE probe (Trans Esophageal Echocardiogram)

PZT based ultrasonic air bubble detector (medical, air-in-tubing sensor)

PZT based single point harsh environment fluid level sensor (ultrasonic gap sensor)

PVDF based flexible in-road axle counting sensor (spiral wound)

Mitch Thompson

Mitch Thompson is Chief Technology Officer for Measurement Specialties, Inc., (NASDAQ: MEAS, Hampton VA) where he is responsible for managing global product development engineering along with technology and IP portfolios. MEAS is a global designer and manufacturer of sensors and sensor-based systems for

Continued on page 5

Mitch Thompson

Working Groups 3 & 7 to Convene 22 April

WG 3 & 7 will convene on Tuesday, 22 April on the campus of CSIC. The se meetings are open to observers. Details about time and location will be available in Winter 2014.

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

WORKING GROUP 3 – HIGH POWER TRANSDUCERS – CONVENOR REPORT

87/493/DC was issued in early 2012, requesting opinions from NCs on the options for reviewing IEC/TR 60886: Investigations on test procedures for ultrasonic cleaners. 87/493/DC requested NC views on the future of IEC 60886, five options being given ranging from withdrawal to a revision with a new scope modified to include methods for measuring quantities such as the spatial distribution of acoustic pressure using hydrophones. The consensus was that that IEC/TR 60886 should be revised with an expanded scope and content reflecting technical progress in test procedures over the intervening period, employing devices such as hydrophones and cavitation detectors.

Up-dated from the WG meeting:

WG3 held a single meeting, discussing the current position regarding techniques which might be included in the revision of IEC/TR 60886. A member of WG3 raised the issue of a document which was close to publication as a Technical Specification in Germany (DIN spec 4070: 2013-7). It focused on measuring acoustic noise generated by cavitation bubbles within cleaning vessels. Permission would be sought to release the document to the WG as it was felt this could form an important and useful document to build upon. A second identified action was to seek NC opinions on whether methods for characterizing cleanliness had developed significantly since IEC/TR 60886, potentially taking guidance from other areas of technology. WG3 additionally highlighted the importance of ensuring of operator safety was appropriately covered within evolving documents either from WG3 or other sources. The next WG3 meeting was provisionally planned for April 2014, in Madrid.

Bajram Zeqiri
23-October-2013

WORKING GROUP 7 – ULTRASONIC SURGICAL DEVICES – CONVENOR REPORT

TC87/WG7 met on Wednesday 23 October PM with three members and seven observers. All the items in the agenda were discussed at length.

Item 1. IEC 61847 "Ultrasonics – Surgical systems – Measurement and declaration of the basic output characteristics." This item was discussed and it was agreed that while the standard is still valid and useful, devices have recently been introduced into the market which have vibrational modes that are not covered by the standard. This has caused confusion within the market and among manufacturers. Further, the nomenclature and organization of the standard does not comply with the current IEC practice. A revision to update the standard and to specifically incorporate the measurement of non-longitudinal motion is required.

Action: The WG requests that the Secretary issue a Review Report on this standard, and that this maintenance item be put on the work program of the TC.

Item 2. IEC 61846 "Ultrasonics – Pressure pulse lithotripters – Characteristics of fields." There was significant discussion of this topic, and it was noted that are now newer measurement technologies than those listed in the document, and further, the applicability of -6dB contours has come into question from a clinical standpoint. Note was made of a Korean NC proposal from 2009 that lists suggested updates to the document. A revision to update the standard is required.

Action: The WG requests that the Secretary issue a Review Report on this standard, and that this maintenance item be put on the work program of the TC.

Item 3. "Non or weakly focused pressure pulse devices" Dr. Ueberle presented his work on the topic, and it was discussed at some length. These devices are growing in use, and do not fall within any current measurement standard, and thus there is uncertainty within the market as to how to measure and report output from them in a standardized way. Dr. Ueberle's work included suggested measurement approaches and a list of reported parameters.

Action: The WG requests that the Secretary put the development of a new standard on the work program of the TC. A New Work Item is proposed.

Working Groups 3 & 7 to Convene 22 April, continued

Item 4. There was discussion of the definition of certain device characteristics applicable to ultrasonic surgical devices used for cutting and hemostasis. These would be appropriate for incorporation into a TR, in order to clarify these issues for industry.

Action: The WG requests that the Secretary put the development of a new TR on the work program of the TC. The title would be (tentatively) "Ultrasonic Surgical Devices – Definition of Clamping Area, Forces, and Pressures"

Item 5. There was extensive discussion regarding the scope of the Working Group. The expertise and experience within the WG is applicable to devices and techniques beyond surgical systems. For instance, there are a number of new therapeutic devices which are not focused (which is the scope of WG6) or are at relatively low frequencies (which are similar to existing surgical devices). The Convenor of WG6 was present at the meeting and the interaction between the two WG was also considered.

Action: The WG requests that the Secretary expand the scope of the TC to be "Surgical and Therapeutic Devices".

Item 6. The next date of the WG meeting is tentatively set to occur in Madrid, Spain on April 22, 2014. This will coincide with the next Ultrasonic Industry Association (UIA) Annual Symposium. Working Group 3 will also be meeting at the same location and day.

Respectfully submitted, Mark E. Schafer, Convenor, WG7

Mark Schafer

UIA 43: Thursday Workshops, continued

measuring pressure, force, position, vibration, temperature, humidity, and many other physical properties. Dr. Thompson received a B.S. in Meteorology in 1977 from Penn State, was commissioned into the US Navy, and served in various shipboard propulsion engineering positions. He received an M.S. in Mechanical Engineering from Penn State in 1983 and joined IBM as a semiconductor process development engineer in Advanced Optical Photolithography. In 1986 he joined the start up Piezo Film Group inside Pennwalt Corporation, where he began working on the commercialization of piezoelectric polymer technology. He has been deeply involved in the design and manufacture of PVDF and P(VDF-TrFE) based transducers for a wide range of applications and markets, and has been responsible for fundamental electro-active material polymer technologies for many years. Throughout the 1990's he held increasing levels of engineering responsibility, managing product, manufacturing, test system, and materials engineering teams for the Piezo Film Group.

MEAS acquired the Group in 1998 and he was appointed Global Piezo Engineering Director. In 2002 he earned a Ph.D. in Mechanical Engineering from Drexel University, and was appointed to his current position in 2008.

UIA 43: Invited Speakers, continued

parameters. By using mutual information, linear discriminant analysis and statistical test, we were able to find the best 5 parameters able to discriminate the lesions. The results were compared to the results of eleven authors taken from literature. We found that in this scenario the morphological parameters have stronger capacity of discriminating the lesion as compared to texture parameters and even with a mixture of morphological and texture parameters.

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 .

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

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 Fedsicas, 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) 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.

IEC TC 87 - WG3 & WG7

WORKING GROUP 3 – HIGH POWER TRANSDUCERS and **WORKING GROUP 7 – ULTRASONIC SURGICAL DEVICES** will meet in Madrid, Spain on Tuesday, 22 April immediately proceeding UIA43: 2014 Symposium of the Ultrasonic Industry Association.

The meeting will be held at CSIC, specific building and room to be announced. Participants and observers are welcome to register for and participate in UIA 43 and to stay at the selected hotel for UIA 43 (see page 9 for information and page ?? for the hotel reservation form.)

President's Message

The application of ultrasound to effect material changes is a complex design and realisation process, and although academia and business are making great strides with computational modelling and systematic characterisation tools, it is at times a matter of experience and even a 'black art' to get the darn thing working.

I've been in the science and business of medical and industrial ultrasonics for almost a generation, now, and with some recent new recruits, I've found myself re-examining why we do things a certain way – "because we've always done so" is not necessarily thorough enough - and coupling this review process to the objective insight of fresh young eyes and minds has already started to reap rewards. Indeed, it's a little like finding a new matching layer material: it just makes it work a bit better.

Disseminating what we know to the wider community is pretty much the whole point of what we do, whether publishing papers or developing new devices for the marketplace, but I think one of our biggest responsibilities is in transferring our experience to the new folk in our technical field, so that they can take up the reins of turning a 'black art' into a desk instruction. That's another aspect of what makes UIA stand out: the seamless combination of old hands and rookies, in the same sessions, talking about the same things, but with different perspectives. So, if you can, bring along your junior colleagues to our Madrid Symposium in 2014, and pass on what you know.

I wish you all the best for the festive season, and I look forward to a prosperous new year, and to seeing you in Madrid in April.

Mark Hodnett, UIA President, points out the value of UIA:

That's another aspect of what makes UIA stand out: the seamless combination of old hands and rookies, in the same sessions, talking about the same things, but with different perspectives. So, if you can, bring along your junior colleagues to our Madrid Symposium in 2014, and pass on what you know.

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UIA 43: 23 - 25 April 2014 Madrid, Spain

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 is delighted to 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 Iberamerica 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 Programme, 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 environs where our symposium meeting space.

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 "Lightning 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 our previous symposia NPL and the University of Scotland in Glasgow, we will take advantage of campus meeting space for our program. This flexibility allows delegates to chose their own accommodations, should they wish. 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 €94.05double. 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).

See page 14 for the reservation form.

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.

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…

P O Box 2307
Dayton, OH 45301-2307 USA
Phone: +1.937.586.3725
Fax: +1.937.586.3699
uia@ultrasonics.org
www.ultrasonics.org

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UIA
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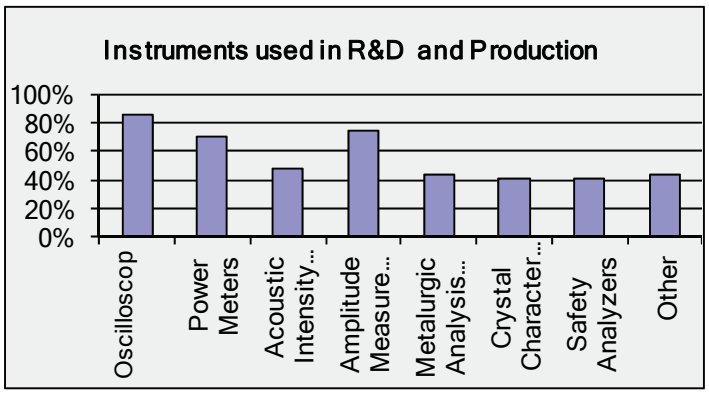

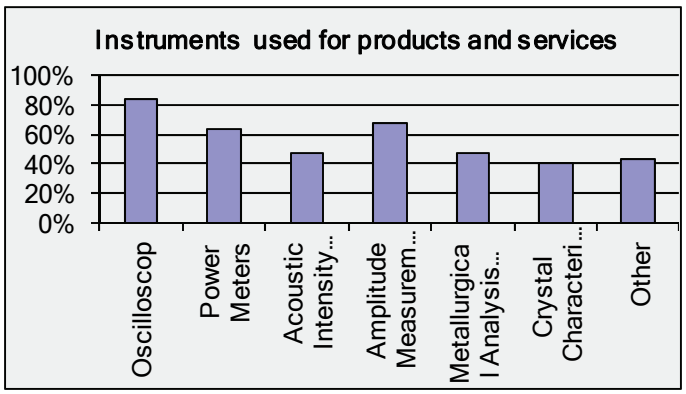

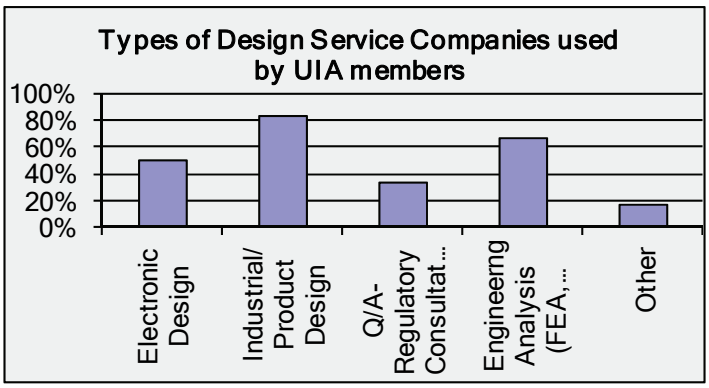

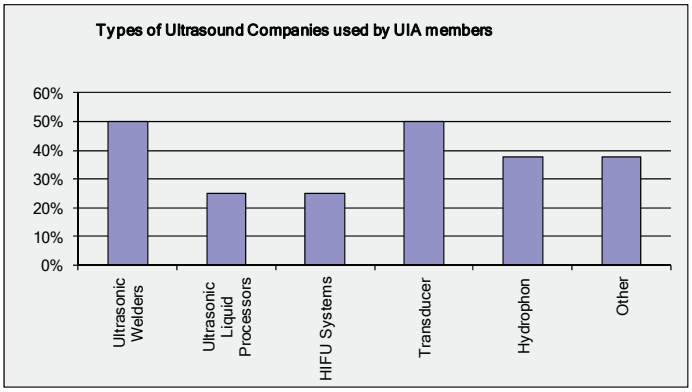

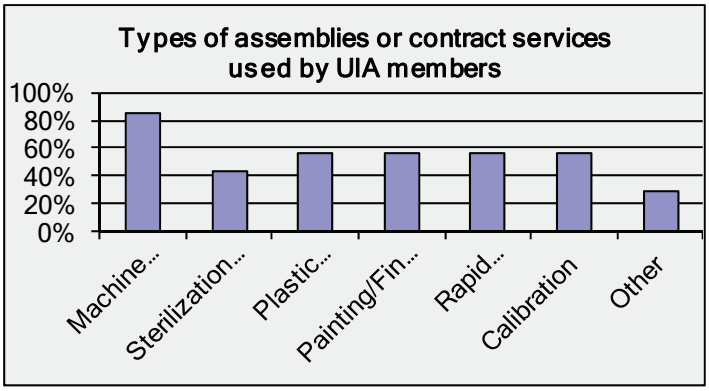

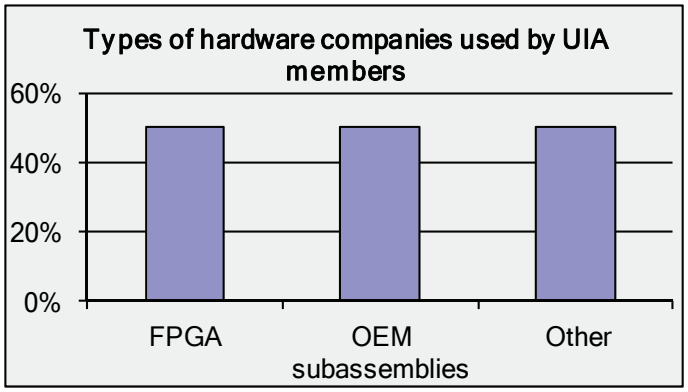

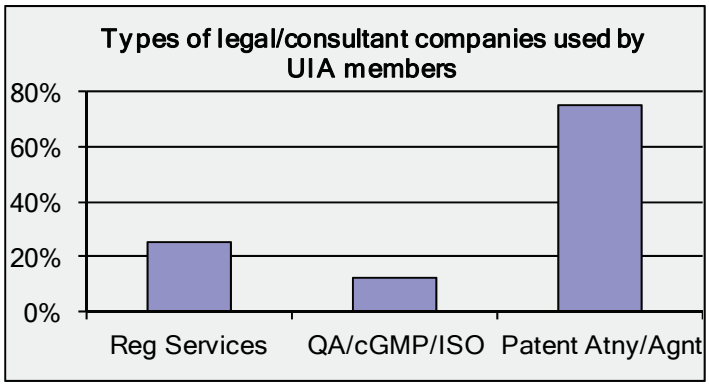

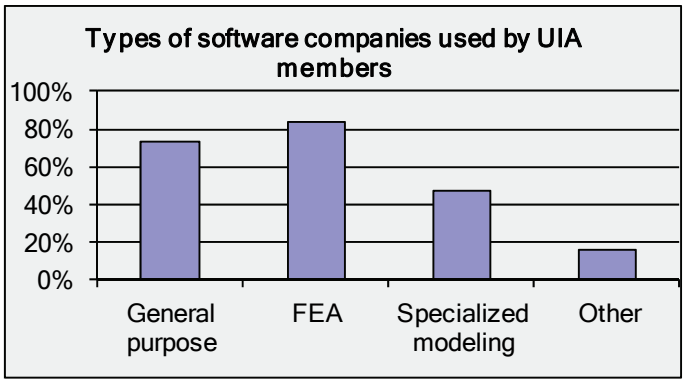

Exhibit and Sponsor Information
2014 UIA Symposium

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

Please use the form attached or contact UIA for more information

P O Box 2307
Dayton, OH 45301-2307 USA
Phone: +1.937.586.3725
Fax: +1.937.586.3699
uia@ultrasonics.org
www.ultrasonics.org

ultrasonic industry association
UIA
powering sound ideas

43rd Annual UIA Symposium 23 – 25 April 2014

CSIC
Madrid, Spain

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

Wednesday, 23 April 2014		**Thursday, 24 April**		**Friday, 25 April**
800	Literature Set-up	800 - 1200	Literature Tables	800 - 1530
900 - 1600	Literature Tables	1330 – 1600	Practical demos	

PAYMENT INFORMATION

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

_____ $_____

Exhibit I – includes one registration

BEFORE 20 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 20 December ☐ **Member - $2,470** ☐ **Non-Member - $2,790**

1 January and after ☐ **Member - $2,670** ☐ **Non-Member - $3,070**

TOTAL $_____

Table Top Exhibit includes literature table, company identification sign, Pecha Kucha presentation and Tuesday practical demo (on first come / first served basis) 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 Hilton Orlando LBV 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

HOTEL RESERVATION FORM **NH Hotels: Hesperia Emperatriz**

Ultrasonic Industry Association 23/04/2014 – 25/04/2014

Please complete in BLOCK CAPITALS or type and print – return by fax or post

Hesperia Emperatriz Hotel Lopez de Hoyos, 4 28006 Madrid – Spain Tel: +34.915.63.80.88 Fax: +34.915.63.98.04 Contact name: Sabrina Acebal s.acebal@nh-hotels.com Loc: 188228471	**RATE PER ROOM AND NIGHT excluding 10% taxes**			
	BEDROOM TYPE	Double/Twin for Single Occupancy		Double/Twin for Double Occupancy	
	Standard Room Breakfast Included	77.50€		85.50€	
	10% VAT Excluded *For extra nights charges, please check with our reservations department for best available rate.*				

Date of arrival _____ Hour _____ Date of Departure _____ Hour _____

Last Name _____ First Name _____

Title _____ Company _____

Mailing Address _____

County _____

Telephone + _____ Fax + _____

Email _____

Accompanied by _____

Reservation guaranteed by my credit card:

❒ Master/Eurocard ❒ American Express ❒ Visa ❒ Diners

Cardholder Name

Card Number | | | | | | | | | | | | | | | | |

Exp Date _____ Security Code _____

Signature _____

Please note:

- To take advantage of these rates, please use ONLY this reservation form. No reservation will be accepted without filling all the above information and sending this form to hotel contact.
- UIA has a contracted room block in our hotel. Hotel Hesperia Emperatriz will be able to deny a room reservation request if the UIA room block has been already booked. In case of any room available hotel will by no means increase Universia contracted rate for this event.
- Any reservation request arriving after final cut off date will be confirmed at congress rate when bedrooms available.
- Check in time is 15:00H/ Check out 12:00H. Please contact the hotel to arrange an early check-in.
- Payment will be done directly at reception desk
- Credit card will be requested at reception desk during check-in process. May credit card details in this form not match credit card provided during check in process hotel Hesperia Emperatriz**** will be able to keep and use both as guarantee for reservation or/and stay.

Cancellations Policy:

- Cancellations made up to 72 hours prior to arrival are free of charge.
- Penalty of one (1) night for cancellations made between 72 and 24 hours prior to arrival.
- Penalty of 100% of total amount for cancellations made less than 24 hours prior to arrival or in case of no-show.

By signing this registration form hotel is authorized to charge in credit card provided any cancellation fee incurred in this reservation.

PLEASE DO NOT FORGET TO TAKE A COPY FOR YOUR OWN RECORD!

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

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

Daily Registration

Thursday does NOT include Thursday Evening Event

Select which day:
- ❑ Wednesday
- ❑ Thursday
- ❑ Friday

Select your category:
- ❑ Member
- ❑ Nonmember
- ❑ 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

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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E-mail: uia@ultrasonics.org

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powering sound ideas

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.

Two views of the Madrid sky-line and the location of UIA43 on the CSIC campus