

UIA's 32nd Annual Symposium in New York, NY at a Glance

- To present a world class educational program on timely issues pertaining to the field of high power ultrasound in industry and medicine
- To provide a forum for discussion and networking among professionals employed or interested in the science and application of ultrasonics.
- To provide a program that will be of mutual benefit to the individuals attending; these attendees will be interested in the cross fertilization of ideas, which is available from divergent applications and research using ultrasonic energy.

Tuesday October 22

7:00 to 8:00 am	Late Registration and Continental Breakfast
8:00 to 12:00 pm	Material Engineering and Cleaning with Ultrasound
12:00 to 1:00 pm	Buffet Lunch with Board member nominations and voting
1:00 to 5:00 pm	High Power Ultrasound in Material Joining

Wednesday October 23

7:00 to 8:00 am	Late Registration and Continental Breakfast
8:00 to 12:00 pm	Ultrasonic Welding Seminars
12:00 to 1:00 pm	Buffet Lunch
1:00 to 4:00 pm	Ultrasonic Welding Seminars

Work breaks with refreshments will be provided on Monday and Tuesday morning, Monday and Tuesday afternoon, and Wednesday morning.

Exhibitor Booths will be open in mornings, during breaks and during Wine and Cheese Reception

Conference Overview

Sunday October 20

1:00 to 5:00 pm	Exhibitor Booth Set Up
1:00 to 5:00 pm	Sign in and Late Registration
5:00 Pm to 7:00 pm	UIA Board Meeting

Monday October 21

7:00 to 8:00 am	Late Registration and Continental Breakfast
8:00 to 12:00 pm	Sonically Enhanced Processing and Biochemical Applications
12:00 to 1:00 pm	Buffet Lunch Proctor and Gamble Award Ceremony and Paper Presentation
1:00 to 5:00 pm	High Power Ultrasound in Medicine
5:30 to 6:30 pm	Wine and Cheese Reception

UIA Sustaining Members

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UIA Presents Unique Ultrasonic Plastic Welding Seminar

In New York City on October 23, 2002, the "third day" of the 32nd Annual UIA Symposium, UIA invites the plastic welding user community is invited to attend a special seminar presented by representatives of UIA member companies involved in providing ultrasonic plastic welding equipment, tooling, and applications expertise.

We can't stress enough how unique this opportunity is. Each of these companies regularly presents seminars on their own, but this time they have joined forces to present a technical seminar at which you can learn from not just one expert, but a roomful.


Current UIA Vice President, Tom Kirkland, will moderate a program that will include these topics and speakers:

Basic Principles of Ultrasound	Karl Graff, Director, Edison Welding Institute
Acoustic Tooling	Karl Graff
Fixtures	Jeff Frantz, Director of Applications and Tooling, Branson Ultrasonics
Thermoplastic Materials	Tom Kirkland, Business Unit Manager, Dukane Ultrasonics
Part Design Considerations	Jeff Frantz
Process Control	Donald Patten, Applications Lab Manager, Stapla USA
Other Assembly Processes (Staking/Swaging, Inserting, Spotwelding, Degating, Fabric/Film)	Janet Devine, President, Sonobond Ultrasonics

One half-hour is reserved for discussion of applications raised by attendees. (Attendees are encouraged to bring sample parts for this discussion.) The final half-hour is reserved for an open forum in which all presenters will be available to answer any final questions. A seminar outline book will be provided for note-taking, and each presenter will be making educational and sales literature available to all participants.

See the symposium registration form for fee information. Lunch and breaks are included in the fee.

Please consider taking advantage of this unprecedented opportunity, and pass the word along to your associates who design or manufacture ultrasonically welded assemblies.



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UIA Symposium Registration Form

Please print and complete all information. This information will be printed in the registration listing and on your name badge.

Name (circle one) Dr./Mr./Mrs./Ms. _____

Nickname _____ Title _____

Organization _____

Address _____

City _____ State _____ Zip _____

Country _____

Phone _____ Fax _____

E-mail _____

Yes, I will attend the reception on 10/21/02.

Member of (please check all that apply) UIA UTAG USS ASA EWI IEEE/UFFC

Do you need UIA Membership Information? Yes, send me more information (or sign up at www.ultrasonics.org).

Please list your job sector (i.e., industry, medical device, education) _____

Please list your area(s) of interest (i.e., laboratory, materials, sensing, etc.) _____

Please list any of your credentials _____

Registration Fees for UIA Symposium

	One Day Only Monday or Tuesday (circle one day)	Two Days Only Monday & Tuesday or Tuesday & Wednesday (circle one set of days)	Full Conference Monday Thru Wednesday	Wednesday Workshop Only
UIA Member	<input type="checkbox"/> \$295	<input type="checkbox"/> \$390	<input type="checkbox"/> \$490	<input type="checkbox"/> \$150
Nonmember	<input type="checkbox"/> \$295	<input type="checkbox"/> \$425	<input type="checkbox"/> \$525	<input type="checkbox"/> \$175
Student/Retiree	<input type="checkbox"/> \$295	<input type="checkbox"/> \$325	<input type="checkbox"/> \$425	<input type="checkbox"/> \$140
Presenter	<input type="checkbox"/> \$295	<input type="checkbox"/> \$325	<input type="checkbox"/> \$425	<input type="checkbox"/> \$140 **
TOTAL ENCLOSED	\$ _____			

** No registration fee for Wednesday presenters

Hotel Accommodations

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You are responsible for your own reservations.
Cut-off date for special rates is October 4, 2002.

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UIA 32nd Annual Symposium

Procter & Gamble (P&G) Graduate Research Award

The Ultrasonic Industry Association (UIA) is pleased to announce that a P&G Graduate Research Award will be presented at the 32nd UIA Symposium on October 21 & 23, 2002 at The Helmsley Hotel New York, NY. The Graduate Research Award recognizes excellence in graduate studies in the science and technologies of interest to the Ultrasonic Industry Association. The award is supported by P&G and consists of a **\$1,500 cash prize and a plaque.**

Eligibility

- Applicant must be a full-time graduate student in an academic institution.
- Applicant research topic must be in the field of ultrasonic applications (e.g. cleaning, sonochemistry, welding, medical, etc.)
- Applicant must be working on a research dissertation at the M.S. or Ph.D. level.

How to Enter?

- Send the following information to the address below:
 - A title page including:
 - Title of research topic
 - Your Name
 - Topic or Title of Paper
 - Complete mailing address
 - Telephone and Fax numbers & Email address.
 - A description of the graduate study (maximum 1 page).
 - Attach a resume including list of publications (maximum 3 pages).
- An official university transcript or letter of support from Department Chair.
 - Any other supporting information (maximum 5 pages).

Selection Process

The Board of Directors of the UIA will select the winner using the following criteria: description of the research topic and its relevance to the UIA interest areas and the academic excellence of the applicant.

Announcement

The award recipient will be notified by September 1, 2002. The award will be made at the 32nd UIA Annual Symposium at The Helmsley Hotel New York, NY on October 21 & 23, 2002. The recipient will be invited to present his/her paper at the Annual Meeting of the UIA when the award will be presented. The winner may also invite a couple of significant family members, too.

Deadline

Your application must be received no later than July 1, 2002.

Send Applications to:

Ultrasonic Industry Association, Inc.

c/o Seth Hettinger, 1111 N. Dunlap Ave., Savoy, IL 61874

Phone: (217) 356-3182, ext 34

Email: uia@ultrasonics.org or sethh@assoqh.org • Web: www.ultrasonics.org



32nd Annual UIA Symposium

October 21 & 22, 2002
The Helmsley Hotel, New York, NY

Call for Papers

Deadline for submission: July 1, 2002

The Ultrasonic Industry Association, Inc. invites you to submit a 200 word abstract for consideration of presentation at the UIA's 32nd Annual Symposium.

Please check the appropriate category of your proposed presentation:

- Industrial Applications
 - NDE
 - Cleaning
 - Measurement
 - Components
 - Underwater
 - Pulp/Paper
 - Sensing
 - Atomization
- Sonically Enhanced Processing
 - Sonochemistry
 - Cleaning
 - Agglomeration
 - Separation
 - Environmental
 - Pharmaceutical
 - Sonoluminescence
 - Defoaming
 - Degassing
 - Compaction
- High Power
 - Metal and plastic joining & fastening
 - Welding Films, Fabrics, Metals, Plastics
 - Cutting
 - Power Supplies/Generators
- Medical
 - Surgical/Therapeutic
 - Cavitation
 - High Intensity Focused Ultrasound
 - Biological Cell Disruption

Lead a Workshop: _____

Please print clearly:

Presentation Title: _____

Authors: _____

Presenter(s): _____

Main Contact Name (Person to receive correspondence): _____

Address: _____

City/State/Zip: _____

Phone #: _____ Fax #: _____

Email: _____

Deadline: May 1, 2002 for submitting *Call for Papers Form*

Important Information: Presentations will be no longer than 25-30 minutes; final abstracts (diskette or Email) and bio-sketches must be submitted to UIA Headquarters no later than July 1, 2002. The session chair will contact you directly to discuss your proposed presentation. *Accepted presenters receive a discounted registration fee.*

Chairpersons: Ron Staut, APC International, Phone: (570)726-6961, Fax: (570) 726-7466, Email: ronstaut@aol.com
Ron Manna, Misonix, Inc., Phone: (631)694-9555, Fax: (631) 694-9412, Email: misonix@aol.com

Ultrasonic Industry Association, Inc.

Attn: UIA Call for Papers, 1111 N. Dunlap Ave., Savoy, IL 61874

Email: uia@ultrasonics.org Web: www.ultrasonics.org

UIA Presidents Message - Jeff Vaitekunas

I am happy to report that the medical workshop in May was a success. My thanks to Foster Stulen and Alan Winder for all of their hard work. Read about what you missed (if you weren't there) elsewhere in this *Vibrations*. If you are in any way involved in medical ultrasound, try to plan ahead for next year because another medical workshop is already shaping up nicely. Watch for an announcement in the fall *Vibrations*.

Following on the success of the May meeting, more hard work from the annual symposium committee prepares us for our October symposium in New York. Watch www.ultrasonics.org for updates, registration materials, and other pertinent information. Also see elsewhere in this *Vibrations* for some preliminary agendas and registration. We're planning a special plastics welding session on Wednesday for those interested in joining (pun intended). See you in New York!

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Comments from the Editor

Food for Thought

A former boss of mine used to use the phrase "food for thought" whenever he was floating an idea that he thought he might want me to adopt. It was his gentle way of saying, "If you have no strong objections, do it this way." Well, I'm not that subtle, so this little column is my way of saying, "This is the way I think things ought to be."

The middle two issues of *UIA Vibrations* each year tend to fill up with news about the Medical Conference and Annual Symposium, and we usually omit a technical paper, as we have done in this issue. Of course, it would be ridiculous to assume that nobody is making any technical progress, that no member companies are introducing new products or processes, or that our membership has nothing to say. It is with this in mind that I express my mild surprise at the very small trickle of press releases and announcements from membership that are sent to either UIA Headquarters or directly to me for inclusion in the newsletter.

This newsletter is, for much of the membership, the main point of contact with UIA for most of the year. It would seem that if something were going on that would be of general interest to the membership, this would be the place to make it known.

So, please feel free to send press releases, notices of personnel changes, press clippings, and general information to UIA Headquarters or to me directly, and they will be considered for inclusion in the newsletter. Think of this newsletter as an industry-wide bulletin board. Sometimes space is limited, sometimes content is not appropriate, and sometimes we can't obtain permission to run an item, but most of the time we can find a way to get what you send in one issue or another.

Looking forward to hearing from you!

Tom Kirkland, Editor

Review of the Second UIA Medical Workshop by Foster B. Stulen, Ph.D., and Alan A. Winder, M.E.E.

The Second UIA Medical Workshop was held at the Taj Mahal in Atlantic City, NJ on Monday May 20, 2002. It immediately proceeded the four-day Leading Edge Conference on diagnostic ultrasound (US) held May 21-24. The UIA program focused on therapeutic US designed to complement the Leading Edge program. The workshop had three sessions: Bioeffects and Drug Delivery, Hemodynamics and Devices, and Materials and Transducer Arrays.

The workshop included three invited speakers: Drs. Terry Matsunaga, Peter Lewin, and Flemming Forsberg. Dr. Terry Matsunaga of ImaRx Therapeutics, Inc discussed their targeted lipid coated microbubble technology. The molecular construct includes a bioconjugate ligand that directs the rest of the molecule to a target, a tether that allows the entropic freedom to seek and align with the receptor, and an anchor moiety to tie the tether to the lipid shell. After they have attached to their targets, US energy is introduced to lyse the microbubbles to deliver their payload of drug or specific gene. Dr. Matsunaga presented data from several in vitro and in vivo experiments that demonstrated the effectiveness of targeted microbubbles binding to their targets, which included microbubbles targeted to the surface of blood clots, with heparin or tissue plasminogen activator (TPA) plus US, and US-

mediated gene delivery (via microbubbles) to myocardium. He was immediately followed by Dr. Peter Lewin of Drexel University who presented his paper on the "Therapeutic Wonders of Ultrasound," which reviewed the underlying therapeutic ultrasonic mechanisms, including thermal, cavitation, acoustic microstreaming, and radiation force. Dr. Lewin ended his thorough overview with a stimulating discussion of current and future applications of therapeutic US, including sonophoresis, pain relief/management, non-invasive stimulation of human neural structures, soft tissue wound and bone fracture healing, lithotripsy, HIFU, and controlled drug and gene delivery. Dr. Forsberg of Thomas Jefferson University described the development of anti-angiogenesis agents and the clinical evaluation and monitoring of anti-angiogenic therapy in the treatment of malignant tumors.

Morning Sessions

The presentations on Bioeffects and Drug Delivery by Drs. Matsunaga and Lewin were given in the morning session. Three additional presentations were made during the session. Dr. Muratore of the Riverside Research Institute presented his work in combination with Dr. Lizzi on radiation force elastography. This is an imaging modality that uses correlation between one spatial ultrasonic data set and one obtained after local deformation from radiation force. The technique can be used to differentiate healthy and diseased tissues based on differences in effective Young's modulus. Dr. Everbach of Swarthmore College presented his research on ultrasonically enhanced thrombolysis and shared some potential theories, which he plans to test this summer. Dr. Stulen presented the doctoral research on ultrasonic tissue cutting of Mr. Vaitekunas from Ethicon Endo-Surgery. Dr. Stulen serves as his research advisor at the University of Cincinnati.

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Review of the Second UIA Medical Workshop

Afternoon Sessions

The afternoon session opened with Dr. Levon Nazarian of the Thomas Jefferson University Hospital who presented the importance of power Doppler US to distinguish pathologies and acute inflammatory processes in musculoskeletal structures. Dr. Nazarian gave clinical examples where increased power Doppler flow was associated with abnormalities such as chronic tendonitis, tenosynovitis, rotator cuff tears, muscle inflammation, joint effusions (shoulder, elbow,

hip, knee, and ankle), rheumatoid joints, etc. Increased flow was also observed because of neovascularity from soft tissue tumors. Dr. Nazarian was followed by Roger Talish of Smith & Nephew-Exogen. The first part of Mr. Talish's presentation addressed the extension of the Exogen therapeutic US product to include non-union bone fractures. Utilizing low intensity pulsed US, the registry database showed that the healing rate for fresh fractures (0-90 days), delayed unions (91-255 days), and nonunions (≥ 256 days) was 94, 90, and 83%, respectively. The second half of the presentation was a discussion of the results of preliminary in vivo studies of low frequency (25-40 Hz) mechanical vibrational stimulation (acceleration 0.2-0.4 g) of the musculoskeletal system for increasing bone mass in animals (turkeys and sheep) and postmeno-

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web: www.ultrasonics.org


pausal women. Dr. Flemming Forsberg then gave his paper on evaluating angiogenesis with applications in US.

The second part of the afternoon session focused on materials and transducer development. Dr. Wesley Hackenberger of TRS Ceramics, Inc. presented an overview of ceramic materials for medical applications in the 1- to 20-MHz range. He primarily focused on single crystal piezoelectric materials that exhibit very high electromechanical coupling coefficients ($k > 90\%$) and field induced strains ($>1\%$) with inherently more bandwidth ($>120\%$). Dr. Rajesh Panda of Philips Medical Systems then discussed some practical considerations in utilizing PMN-PT and PZN-PT for fabricating 1-D linear arrays, such as chemical composition within the wafer, curie temperature, orientation cut, and impact on reliability and reproducibility. An interelement amplitude uniformity of ± 1 dB was measured for a prototype 50-element linear array operating in the 1- to 4-MHz band. This was followed by Dr. Bahram Jadidian of J&W Medical LLC who reviewed the design and development of transducers in the 20- to 200-MHz range. Dr. Jadidian addressed a matrix of ceramic materials, including fine grain lead zirconate titanate (PZT), PVDF, piezo-ceramic/polymer composites, thin film zinc oxide (ZnO), and lead titanate (PT). Finally, Dr. A.J. Kahn from Advanced Cerametrics, Inc. discussed the fabrication and characterization of fine-scale piezoelectric fiber composites with 1-3 connectivity. A spinning process produced PZT and PMN-PT fibers with a diameter of the order of 10μ . The orientation within fiber composites facilitates the elimination or minimization of masking radial modes.

After-Thoughts

The overall attendance was lower than desired, but a 40% increase over last year, including speakers. The general feedback is that it was an excellent meeting and is one of the more desirable conferences for biomedical scientists and engineers to attend. The message we are hearing is that it is also desirable to keep the workshop to one day, thereby requiring that we maintain the high quality of papers. Both the presenters and the audience appreciated the extended 25-minute format with 5 minutes for questions and answers. It allowed a presenter to go into much deeper detail than otherwise and gave the audience that much more understanding. The UIA Medical Workshop, focusing on both the low and high intensity therapeutic fields and their bridges to the diagnostic world, appears to be gaining recognition as a premier source of cutting-edge practical and theoretical information.

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UIA Membership Directory Updates and Corrections

It has been brought to our attention that many of our members although listed in the member listing were inadvertently omitted from the delegate listing of the 2002 UIA Directory. Please add the attached to your directory so that any errors and omissions can stand corrected. We regret any inconvenience this may have caused.

Add to Delegate listing

NAME	COMPANY	TELEPHONE	E-MAIL
Brain, E.	NDT Technologies, Inc.	514 457-7650	info@ndt.ca
Brosch, Jared	Piezotech	317 876-4670	etalon@in-motion.net
Diolaiti, Erminio	Tecnea Engineering S.R.L.	011 39-0542-670416	tecnea@imolanet.com
Diolaiti, Luigi	Tecnea Engineering S.R.L.	011 39-0542-670416	tecnea@imolanet.com
Frantz, Jeff	Branson Ultrasonics Corp.	203 796-0400	Frantz@bransonultrasonics.com
Hoznour, M.	NDT Technologies, Inc.	514 457-7650	info@ndt.ca
Hudak, John	Piezo Solutions	330 995-4781	JohnHudak@piezosolutions.net
Kellogg, Scott	Sontra Medical, Inc.	617 494-5337	
Klinstein, Leo	Dukane Corp., Ultrasonics Div.	630 584-2300	
Kosterman, James	Dukane Corp., Ultrasonics Div.	630 584-2300	
Miller, James	Food & Drug Administration	301 594-4591	jrm@cdrh.fda.gov
Miller, James	Ultrasonic Converter Technologies, Inc	716 328-8520	
Moreland, Mary	Bullen Ultrasonics, Inc.	937 472-3311	mary@bullen-ultrasonics.com
Motta, Giuseppe	Tecnea Engineering S.R.L.	011 39-0542-670416	tecnea@imolanet.com
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Phillips, Michael	Piezotech	317 876-4670	etalon@in-motion.net
Ponatowski, John	Paper Quality Management Associates	978 692-3274	
Ponatowski, Susan	Paper Quality Management Associates	978 692-3274	
Prasad, Shashi	Sensor Technology Ltd	705 444-1440	eprasad@sensortech.ca
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Schaubroeck, Mark	Ultrasonic Converter Technologies	716 328-8520	markbek@aol.com
Shelley II, William	Piezotech	317 876-4670	etalon@in-motion.net
Slaba J.	NDT Technologies, Inc.	514 457-7650	info@ndt.ca
Stewart, Scott	Ultrasonic Converter Technologies, Inc.	716 328-8520	
Valtancoli, Silvano	Tecnea Engineering S.R.L.	011 39-0542-670416	tecnea@imolanet.com
Walkinshaw, John	Paper Quality Management Associates	978 692-3274	

The following corrections should be made also:

Modal Mechanics, David Wuchinich

Phone number should be 914 965-8825 and e-mail changed to dwuchinich@compuserve.com

Sonic Tech Inc, Mark E. Schafer

Zip code should be 19034

Jeff Frantz is the Chairman of the Nominating Committee

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Announcements

EDO Electro-Ceramic Products, Salt Lake City, UT has announced that Robert H. Snow has been appointed Sales and Marketing Manager for its Ceramic Products division. Rob has been with EDO for 10 years most recently serving as Ceramic Production Manager.



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