

2024 52nd Annual Ultrasonic Industry Association Symposium (UIA 2024)

**Dublin, Ireland
8-10 April 2024**



**IEEE Catalog Number: CFP2445J-POD
ISBN: 979-8-3503-7583-1**

**Copyright © 2024, Ultrasonic Industry Association (UIA)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2445J-POD
ISBN (Print-On-Demand):	979-8-3503-7583-1
ISBN (Online):	978-1-7336821-1-4
ISSN:	2162-349X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

1	Additively Manufactured Ultrasonic Osteotomy Inserts for Improved Temperature Control and Tissue Preservation , <i>Oskar F. Okaya, Juergen Burger, Martin Hoffman</i>
6	An accurate needle tip detecting method for ultrasound-guided regional anaesthesia at various driving voltages and insertion , <i>Ashraf Agweder, Jinpeng Liao, Yilong Zhang, Youheng Zeng, Graeme McLeod, Zhihong Huang</i>
11	Avoiding Adhesive Delamination in Piezoceramic Stacks of Ultrasonic Transducers , <i>Dominick A. DeAngelis and Gary W. Schulze</i>
17	Blood Mimicking Fluid for Reproducing Rheological and Acoustical Blood Properties , <i>Tina A. Fuhrmann, Anton Schlesinger, Michael Schultz, Klaus-V.Jenderka</i>
26	Comparative Study: Ultrasound Imaging Texture Analysis vs. Force and Pressure Device for Regional Anaesthesia , <i>Ashraf Agweder, Graeme McLeod, Yilong Zhang, Youheng Zeng, Wadhhah Aldehani, Zhihong Huang</i>
31	Development of Sonotrode with Multiple-pad Replaceable Tip for Use in the Ultrasonic Welding Process , <i>M. A. Moghaddas</i>
36	Intelligent Diagnostics in Aerospace: Fully Convolutional Neural Network Priors for Improved Ultrasound Image Segmentation , <i>Martin Szarskia, Sunita Chauhana</i>
40	High Frequency Air-Coupled Ultrasound Measurement with the Flexural Ultrasonic Transducer , <i>Andrew Feeney, Lei Kang, Steve Dixon</i>
44	Instrument for measuring prestress in piezoceramics during bolt-clamped Langevin-type transducers preloading , <i>Henrique Alves</i>
51	Mechanical Impedance Matching for Ultrasonic Transducers and their Tools , <i>Dominick A. DeAngelis and Gary W. Schulze</i>
60	New Approaches of Planar Piezoelectric Ultrasonic Transducers for Effective Periodontal Scaling and Care , <i>Martin Hofmann, Diego Stutzer, Quentin Nassisi, Khaled Harmouch, Giovanni Spiezia, Sigrun Eick</i>
63	Optimizing Joint Interface Flatness for Piezoelectric Stacks of Ultrasonic Transducers , <i>Dominick A. DeAngelis and Gary W. Schulze</i>
73	Optimizing the Phase Window of Ultrasonic Transducers , <i>Dominick A. DeAngelis, Gary W. Schulze, Thomas J. Palumbo</i>
82	Optimizing the Selection of Piezoceramic Materials for Ultrasonic Transducers , <i>Dominick A. DeAngelis and Gary W. Schulze</i>
92	Using Perforated Electrodes to Avoid Adhesive Delamination in Piezoceramic Stacks of Ultrasonic Transducers , <i>Dominick A. DeAngelis and Gary W. Schulze</i>