

2022 IEEE International Ultrasonics Symposium (IUS 2022)

**Venice, Italy
10-13 October 2022**

Pages 1-476



**IEEE Catalog Number: CFP22ULT-POD
ISBN: 978-1-6654-7813-7**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. 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:	CFP22ULT-POD
ISBN (Print-On-Demand):	978-1-6654-7813-7
ISBN (Online):	978-1-6654-6657-8
ISSN:	1948-5719

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

XBAR.....	1
<i>Victor Plessky</i>	
Non-Contact Ultrasonic Exploration of Ancient Paintings	12
<i>Victor Takahashi, Jerome Fortineau, Michäel Lematre, Marc Lethiecq</i>	
Triaging Subjects with Palpable Breast Masses for Biopsy, Follow-Up Or Treatment Using AI Applied to Breast Ultrasound in a Low-Resource Setting - A Feasibility Study.....	16
<i>Jhimli Mitra, Soumya Ghose, Fiona Ginty, Wendie A. Berg, Steven Cen, Linda H. Larsen, Christine Dauphine, Sanghee Cho, Susan Love, Cynthia Davis</i>	
Acoustic Field of Strongly Focused HIFU Transducer Operating at 20 MHz - Comparison of Public Domain Numerical Simulators with Experimental Observations.....	20
<i>Tomasz Zawada, Torsten Bove</i>	
Power Spectrum Equalized Passive Acoustic Mapping	24
<i>Chunqi Li, Harry R. Clegg, Thomas M. Carpenter, David M. J. Cowell, Steven Freeear, James R. McLaughlan</i>	
Dynamic F-Number and Shading Weights Determined by Element Directivity for PAM.....	28
<i>Chunqi Li, Harry R. Clegg, Thomas M. Carpenter, David M. J. Cowell, Steven Freeear, James R. McLaughlan</i>	
3D Manipulation and Assembly of Microstructures Using Robotic Acoustic Streaming Tweezers.....	32
<i>Xianjie Shi, Yang Bai, Wei Wei, Xuexin Duan</i>	
Concave 2D Ring Array Transducer for Ultrasound Visual Stimulation of the Brain	36
<i>Jian-Yu Lu, Gengxi Lu, Mark Humayun, Qifa Zhou</i>	
Accurate Location of Key Features in Ultrasonic-Based Spot Weld Inspection.....	40
<i>Aryaz Baradarani, Alex Denisov, Roman Gr. Maev</i>	
COM-Based Perturbation Analysis of Nonlinear Signal Generation in I.H.P. SAW Resonators	42
<i>Ken-Ya Hashimoto, Jingfu Bao</i>	
Detection of Hematoma Boundaries in Transcranial Ultrasound Brain Imaging Via Envelope Reconstruction on Resonance-Based Signal Decomposition	46
<i>Aryaz Baradarani, Kiyanoosh Shapoori, Eugene V. Malyarenko, Jeff Sadler, Juri G. Gelovani, Roman Gr. Maev</i>	
An Extension of Double-Stage DMAS for PMUT Array Imaging	49
<i>Haining Li, Lida Yu, Yongfeng Song, Lifang Liu, Weiliang Ji, Zhanqiang Xing, Xiongbing Li</i>	
A Time-Of-Flight (ToF) Estimation Algorithm for Ranging Using Silicon-On-Nothing pMUTs.....	52
<i>Mantalea Sarafianou, Duan Jian Goh, David Sze Wai Choong</i>	
Segmenting the Carotid-Artery Wall in Ultrasound Image Sequences with a Dual-Resolution U-Net	56
<i>Nolann Lainé, Guillaume Zahnd, Hervé Liebgott, Maciej Orkisz</i>	
Enlarging Rayleigh Elimination Window Through Modulating Substrate and LiNbO ₃ Cut Angle for Fabricating LNOI-Based Spurious-Free Wideband SAW Filters.....	60
<i>Huiping Xu, Sulei Fu, Junyao Shen, Rongxuan Su, Honglang Li, Fei Zeng, Cheng Song, Weibiao Wang, Feng Pan</i>	

Measurement of Lateral and Axial Blood Flow Velocity Components of the Mouse Spinal Cord Microvasculature Using High Frequency Ultrafast Imaging.....	64
<i>Bowen Jing, Dario I. Carrasco, Nicholas Au Yong, Brooks D. Lindsey</i>	
A Photoacoustic Spectrum Feature Extraction Method to Characterize the Hydroxyapatite Degradation Process in Cortical Bone.....	67
<i>Boyi Li, Tianhua Zhou, Xin Liu, Chengcheng Liu, Tho N. H. T. Tran, Ying Li, Dan Li, Yifang Li, Dongsheng Bi, Dean Ta</i>	
Multi-Target Ultrasound Neuromodulation in the Treatment of Freely Moving Depression Mice.....	71
<i>Yiyue Zhu, Jiaru He, Canwen Wu, Junwei Wu, Zhongwen Cheng, Yan Chen, Maodan Yuan, Lvming Zeng, Xuanrong Ji</i>	
Development of an Ultrasonic Probe for Measurements of the Wind Incidence Angle.....	74
<i>Guy Feuillard, Hossep Achdjian, Tom Richard, François Vander Meulen, Christian Prax, Jean Philippe Pineau, Jean Christophe Valière</i>	
Shorter Intracellular Calcium Fluctuations in Re-Sonoporation of the Sonoporated Cells	78
<i>Jianmin Shi, Tao Han, Alfred C. H. Yu, Peng Qin</i>	
Does Wave Mode Conversion at Large Incidence Angles Improve Transcranial Ultrasound Transmission? it Depends on the Porosity.....	81
<i>Bowen Jing, Brooks D. Lindsey</i>	
Accelerating Model-Based Photoacoustic Image Reconstruction in Vivo Based on s-Wave	85
<i>Yuting Shen, Jiadong Zhang, Daohuai Jiang, Zijian Gao, Feng Gao, Fei Gao</i>	
Ultrafast Feedback Control of Stable Cavitation Induced by Rapid Short-Pulse Ultrasound.....	88
<i>Chunjie Tan, Tao Han, Alfred C. H. Yu, Peng Qin</i>	
Passive Cavitation Mapping Using Delay-Multiply-And-Sum (DMAS) Beamforming with Virtually Augmented (VA) Aperture.....	92
<i>You-An Chen, Che-Chou Shen</i>	
Improving Temporal Distribution of Stable Cavitation Intensity Using a Controller Based on Real-Time Intensity Detection	96
<i>Pengcheng Wang, Tao Han, Alfred C. H. Yu, Peng Qin</i>	
Dual-Path Convolutional Neural Network for Chronic Kidney Disease Classification in Ultrasound Echography.....	100
<i>Zhen-Yi Tang, Yen-Chung Lin, Che-Chou Shen</i>	
Manipulation of SAW Slowness Shape Using Low-Cut LT/Quartz Structure for Transverse Resonance Suppression Without K^2 Deterioration.....	104
<i>Yiwen He, Ting Wu, Yu-Po Wong, Temesgen Bailie Workie, Jingfu Bao, Ken-Ya Hashimoto</i>	
Integrated Photoacoustic Pen for Breast Cancer Sentinel Lymph Node Detection	107
<i>Daohuai Jiang, Jiaxian Zhao, Yifan Zhang, Binbin Cong, Yuting Shen, Feng Gao, Yongsheng Wang, Fei Gao</i>	
Sonoporation Stimulates Short-Term Potentiation of Membrane Resealing in Neighboring Cells.....	110
<i>Jianmin Shi, Tao Han, Peng Qin, Alfred C. H. Yu</i>	
Optimization Method for Single-Mode Performance of Laterally Excited BAW Resonators (XBARs).....	113
<i>Natalya Naumenko</i>	

Hand-Held 3D Photoacoustic Imaging System with GPS	117
<i>Daohuai Jiang, Hongbo Chen, Feng Gao, Rui Zheng, Fei Gao</i>	
Photoacoustic Detection of Nuclei Acid-Containing Water Droplets	121
<i>Taehoon Bok, Eric M. Stroh, Krishnan Sathiyamoorthy, Michael C. Kolios</i>	
An FPGA-Based 15-Level Arbitrary Waveform Generator System with Phase/Frequency Modulation for Ultrasound Coded Excitation Using Pulse-Amplitude Modulation (PAM)	124
<i>Amauri Amorin Assef, Renan Antonio Corrêa Medeiros, Ednilson De Souza Contieri, Joaquim Miguel Maia, Eduardo Tavares Costa</i>	
Delay-Multiply-And-Sum Beamforming with Transmit Minimum-Variance Estimation in Multi-Angle Plane-Wave Imaging	128
<i>Gin-Lin Huang, Che-Chou Shen</i>	
Iterative Deconvolution Approach for Automatic Segmentation of Lung Ultrasound Vertical Artifacts	132
<i>Federico Mento, Mauro Gasperotti, Libertario Demi</i>	
Electronic Phantom for Arterial Wall Movement and Blood Flow	136
<i>Stefano Ricci</i>	
Transmit Delay and Standard Deviation Beamforming to Enhance Specular Reflections in Synthetic Transmit Aperture Imaging	140
<i>Cheng-Hao Lin, Che-Chou Shen</i>	
Automatically Scoring Lung Ultrasound Videos of COVID-19 and post-COVID-19 Patients	144
<i>Federico Mento, Antonio Di Sabatino, Anna Fiengo, Umberto Sabatini, Veronica Narvena Macioce, Francesco Tursi, Carmelo Sofia, Chiara Di Cienzo, Andrea Smargiassi, Riccardo Inchingolo, Tiziano Perrone, Libertario Demi</i>	
Dual-Mode Second-Harmonic (DMSH) Generation on an Elastic Plate Medium	148
<i>Krishnadas V Kanakambaran, Krishnan Balasubramaniam</i>	
Metallurgical AuSn Bonding of Piezoelectric Layers	152
<i>Per Kristian Bolstad, Martijn Frijlink, Lars Hoff</i>	
FBAR Oscillator and MEMS Tunable VCSEL to Generate the Probe Lasers for Microfabricated Atomic Clock	156
<i>Motoaki Hara, Satoshi Shinada, Yuichiro Yano, Tetsuya Ido, Zhijian Zhao, Masaya Toda, Takahito Ono, Horoyuki Ito</i>	
COM-Based Modeling of SAW Scattering at Reflector Outer Edges in I.H.P. SAW Resonator	160
<i>Zhaohui Wu, Yi-Ming Liu, Bin Shi, Jing-Fu Bao, Ken-Ya Hashimoto</i>	
Lamb Wave Propagation Analysis by Using Laser Doppler Vibrometer	164
<i>Weiyi Zuo, Zhiwu An, Quanshui Fan, Bixing Zhang</i>	
Transient Elastography at Very High Ultrasound Frequencies	167
<i>Steve Beuve, Lenin Chinchilla, Anthony Novell, Jean-Luc Gennisson</i>	
Anisotropic Nonlinear Shear Elasticity Quantification in Ex Vivo Muscles	170
<i>Ha Hien Phuong Ngo, Marion Bied, Nadia Bahlouli, Ricardo Andrade, Antoine Nordez, Simon Chatelin, Jean-Luc Gennisson</i>	
Vibration Mode Tuning of Acoustic Pillar Array Chip for Precise Microscale Manipulations	174
<i>Shiyu Li, Yujie Wei, Fanhua Qu, Guanyu Zhang, Wei Pang, Weiwei Cui</i>	

PAFormer: Photoacoustic Reconstruction Via Transformer with Mask Mechanism.....	178
<i>Juze Zhang, Jingyan Zhang, Peng Ge, Fei Gao</i>	
Deep Learning-Based Virtual Refocusing of Out-Of-Plane Images for Ultrasound Computed Tomography	182
<i>Zhaohui Liu, Xinan Zhu, Jiameng Wang, Shanshan Wang, Mingyue Ding, Ming Yuchi</i>	
Adaptive Contrast Enhancement of Cardiac Ultrasound Images Using a Deep Unfolded Many-Body Quantum Algorithm.....	184
<i>Sayantan Dutta, Bertrand Georgeot, Denis Kouamé, Damien Garcia, Adrian Basarab</i>	
Wide Field-Of-View Plane Wave Ultrasound Imaging Based on Linear Array Sub-Apertures and Adaptive Weighting Technique.....	188
<i>Yadan Wang, Chichao Zheng, Yuanguo Wang, Mingzhou Liu, Hu Peng</i>	
Ultrasonic Characterization of Rat Vagus Nerves Using 25 MHz Pulse Reflectometry	192
<i>Landon Ivy, Benyamin Davaji, Kawasi Lett, Chris Schaffer, Bruce Johnson, Amit Lal</i>	
LiNbO ₃ Film Bulk Acoustic Resonator for n79 Band.....	196
<i>M. Bousquet, E. Borel, A. Joulie, P. Perreau, E. Soulat, C. Maeder-Pachurka, F. Delaguillaumie, G. Castellan, G. Enyedi, J. Delprato, A. Reinhardt</i>	
A CSM/TFM Imaging Scheme for Silicon-On-Nothing ScAlN pMUT Arrays.....	201
<i>Mantalea Sarafianou, David Sze Wai Choong, Duan Jian Goh, Daniel Ssu-Han Chen, Zhang Yao</i>	
Ultrasound Localization Microscopy for Compression-Induced Spinal Cord Injury Evaluation.....	205
<i>Junjin Yu, Haoru Dong, Yihui Sui, Jiajun Shou, Dean Ta, Rong Xie, Kailiang Xu</i>	
Knowledge Distillation for Mobile Quantitative Ultrasound Imaging	209
<i>Seok-Hwan Oh, Myeong-Gee Kim, Young-Min Kim, Guil Jung, Hyuk-Sool Kwon, Hyeon-Min Bae</i>	
Benign and Malignant Classification of Human Colorectal Tissue by Acoustic-Resolution Photoacoustic Microscopy.....	213
<i>Peng Ge, Shuangqing Tong, Yanan Jiao, Zhaofu Ma, Ziyi Li, Longhai Liu, Feng Gao, Xiaohui Du, Fei Gao</i>	
Increasing the Frame Rate of Echocardiography Images Based on a Novel Interpolation Technique.....	216
<i>Sajjad Afrakhteh, Hamed Jalilian, Giovanni Iacca, Libertario Demi</i>	
Increasing Frame Rate of Focused Ultrasound Imaging Based on Tensor Completion	220
<i>Sajjad Afrakhteh, Giovanni Iacca, Libertario Demi</i>	
Identifying Regions-Of-Interest and Extracting Gold from PCBs Using MHz HIFU.....	224
<i>Axi Holmström, Topi Pudas, Jere Hyvönen, Tom Sillanpää, Petri Lassila, Joni Mäkinen, Kenichiro Mizohata, Antti Kuronen, Tapio Kotiaho, Ari Salmi, Edward Heggström</i>	
Linking Ultrasound Data to Manufacturing Parameters of 3D-Printed Polymers Using Supervised Learning	227
<i>Shafaq Zia, Johan E. Carlson, Pia Åkerfeldt</i>	
Machining of Aluminium with MHz High-Intensity Focused Ultrasound.....	231
<i>Topi Pudas, Jere Hyvönen, Axi Holmström, Tom Sillanpää, Petri Lassila, Joni Mäkinen, Antti Kuronen, Tapio Kotiaho, Ari Salmi, Edward Heggström</i>	

Fast and Automatic Array Tilt Compensation for 1.5D Array Transducers.....	235
<i>Guillermo Cosarinsky, M. Muñoz, Jorge F. Cruza, José Brizuela, Jorge Camacho</i>	
Matrix Array Inspections in NDT: 3D Imaging with the Virtual Array Method.....	239
<i>Guillermo Cosarinsky, M. Muñoz, Jorge F. Cruza, José Brizuela, Jorge Camacho</i>	
Assisted Diagnosis Algorithm for Lung Ultrasound in COVID-19 Patients.....	243
<i>M. Muñoz, Y. Tung-Chen, J. L. Herraiz, R. González, J. F. Cruza, J. Camacho</i>	
Combined Use of Fresnel Lens and Holey-Structured Metamaterial to Obtain Beam Focus Far from Ultrasound Source	247
<i>F. Torres, N. Barniol, A. Uranga</i>	
Focused-Ultrasound-Induced Cavitation Removes Material in a Controlled Fashion	250
<i>Jere Hyvönen, Axi Holmström, Topi Pudas, Tom Sillanpää, Petri Lassila, Joni Mäkinen, Antti Kuronen, Tapio Kotiaho, Ari Salmi, Edward Hæggström</i>	
FEM-Simulations of Tailored 3D Pressure Fields for US-Assisted Oleogel Crystallization	253
<i>Oskari Tommiska, Joni Makinen, Ari Salmi, Fabio Valoppi, Edward Hæggström</i>	
The Role of Acoustic Streaming in Ultrasound-Enhanced Electrospinning - A FEM Simulation Study.....	256
<i>Joni Mäkinen, Johannes Schavikin, Henri Österberg, Fabio Valoppi, Dmitry Nikolaev, Ivo Laidmäe, Jyrki Heinämäki, Ari Salmi, Edward Hæggström</i>	
Localizing Fouling in Water-Filled Pipe with Laser-Induced Non-Axisymmetric Guided Waves.....	260
<i>Joonas Mustonen, Joonas Suorsa, Denys Iablonskyi, Arto Klami, Ari Salmi, Edward Hæggstrom</i>	
Layer Stack Dependencies of Self-Generated Nonlinear Signals in Layered SAW Resonators	263
<i>Thomas Forster, Markus Mayer, Vikrant Chauhan, Peter Schmidt, Thomas Ebner, Karl Wagner, Amelie Hagelauer</i>	
Ultrasonic-Standing-Wave-Crystallized Oleogels Characterized Via Oscillatory Rheology.....	267
<i>Petri Lassila, Fabio Valoppi, Sami Hietala, Ari Salmi, Edward Hæggström</i>	
Study on the Size-Effect of Silicon-Based Acoustic Micropillar Chip for High-Efficiency Microparticle Trapping.....	271
<i>Yujie Wei, Weiwei Cui, Shiyu Li, Xingli Xu, Guanyu Zhang, Wei Pang</i>	
Breaking and Fixing gCNR and Histogram Matching	275
<i>Siegfried Schlunk, Brett Byram</i>	
BEM-FEM Simulation of Acoustic Levitation Dynamics with Phased Arrays	279
<i>Marika Sirkka, Joni Mäkinen, Oskari Tommiska, Denys Iablonskyi, Ari Salmi, Edward Hæggström</i>	
FEM Simulations of the Effects of Fouling Deposits on Laser-Generated Lamb Waves	283
<i>Joonas Suorsa, Joonas Mustonen, Denys Iablonskyi, Arto Klami, Ari Salmi, Edward Hæggström</i>	
Pre-Clinical Development of Contrast-Enhanced Magneto-Motive Ultrasound Imaging of Lymph Nodes.....	286
<i>Marion Bacou, Sandra Sjöstrand, Georgia Adam, Katarzyna Kaczmarek, Adrian Thomson, Tomas Jansson, Susan Moug, Susan Farrington, Carmel M Moran, Helen Mulvana</i>	

Noncontact Laser Ultrasound (NCLUS) Path to Operational Medical System.....	290
<i>Robert Haupt, Kai Thomenius, Anthony Samir, Rajan Gurjar, Matthew Johnson, Jason Sickler, Marko Jakovljevic, Brian Boitnott</i>	
Noninvasive Transcranial Ultrasound System.....	296
<i>Robert W. Haupt, Alan J. Fenn, David J. Brigada, Rebecca M. Laher, Anthony E. Samir</i>	
Large Signal Temperature Coefficient of Frequency	302
<i>Denny Limanto, Divya Gamini, Christopher Money, John Fendrich</i>	
Research on Impact Location of Plate Structures with Holes Based on Ultrasonic Guided Waves	306
<i>Xiaobo Rui, Jiacheng Liu, Yu Zhang, Lixin Xu, Lei Qi, Ningbo Shi</i>	
Ultrasound Contrast Microbubbles Reconstruction Using a Joint Enhanced Mean-To-Standard-Deviation Factor and Minimum Variance Beamformer	310
<i>Yadan Wang, Yuanguo Wang, Chichao Zheng, Hu Peng, Chaoxue Zhang</i>	
Through-Wall Acoustically Linked Temperature Sensor.....	314
<i>Vladimir Pashchenko, Javad Abbaszadeh, Aleš Travník, Jochen Bardong, Mohssen Moridi</i>	
4D Scanning Acoustic Microscopy	318
<i>Felix Sundblad, Jere Hyvönen, Axi Holmström, Ari Salmi, Edward Hægström</i>	
Spatiotemporal Characterization of the Water-Air Interface Deformation Induced by a Transient Acoustic Radiation Pressure.....	322
<i>Félix Sisombat, Thibaut Devaux, Lionel Haumesser, Samuel Calle</i>	
Position and Orientation Control of Complex-Shaped Samples in Acoustic Levitation	325
<i>Felix Sundblad, Denys Iablonskyi, Axi Holmström, Ari Salmi, Edward Hægström</i>	
Ultrasound Cerebral Vasculature Velocimetry: A Comparative Study Between Ultrafast Vector Doppler and Ultrasound Localization Microscopy	329
<i>Shaoyuan Yan, Junjin Yu, Xingyi Guo, Yapeng Fu, Dean Ta, Kailiang Xu</i>	
A 0.5 mm ² Pitch-Matched AlN PMUT-On-CMOS Ultrasound Imaging System	333
<i>Eyglis Ledesma, Iván Zamora, Arantxa Uranga, Núria Barniol</i>	
Highly Sensitive CMUT with Built-In Low-Voltage FET	337
<i>Yoshitaka Tadaki, Shin-Ichiro Umemura</i>	
Highly Sensitive Small Hydrophone with Built-In Stealth Preamplifier.....	339
<i>Shin-Ichiro Umemura, Kaoru Ogaya, Yoshiaki Takemoto, Yoshitaka Tadaki</i>	
CLA-U-Net: Convolutional Long-Short-Term-Memory Attention-Gated U-Net for Automatic Segmentation of the Left Ventricle in 2-D Echocardiograms	341
<i>Zihan Lin, Po-Hsiang Tsui, Yan Zeng, Guangyu Bin, Shuicai Wu, Zhuhuang Zhou</i>	
Automated Characterization of Matrix Transducer Arrays Using the Verasonics Imaging System	345
<i>Djalma Simões Dos Santos, Fabian Fool, Taehoon Kim, Emile Noothout, Nuriel Rozsa, Hendrik J. Vos, Johan G. Bosch, Michiel A. P. Pertijs, Martin D. Verweij, Nico De Jong</i>	
Deep Learning Based Segmentation for Assessment of Fractional Limb Volume in 3D Fetal Ultrasound Imaging.....	349
<i>Rohit Pardasani, Hrithik Achar, Mansi Goel</i>	

Model Compression and FPGA Implementation of an Ultrasonic Flaw Detection Algorithm Based on Meta Learning	353
<i>Yu Yuan, Kushal Virupakshappa, Erdal Oruklu</i>	
Automated Parameter Selection for Super-Resolution Ultrasound Image Processing Using Statistics of Fast and Slow Time Sampling	357
<i>Katherine Brown, Kenneth Hoyt</i>	
Improved Contrast-Enhanced Ultrasound Imaging for the Preclinical Assessment of Liver Cancer Treatment with Transarterial Chemoembolization	361
<i>Katherine Brown, Junjie Li, John R. Eisenbrey, Kenneth Hoyt</i>	
Preclinical Comparison of H-Scan Ultrasound and Diffusion-Weighted Magnetic Resonance Imaging for Monitoring Treatment Response in Breast Cancer	364
<i>Haowei Tai, Ryan Margolis, Junjie Li, Kenneth Hoyt</i>	
Ultrasound Super-Resolution Imaging for the Differentiation of Thyroid Nodules: A Feasibility Study.....	368
<i>Ge Zhang, Jing Vu, Yu-Meng Lei, Jun-Rui Hu, Hai-Man Hu, Sevan Harput, Zhen-Zhong Guo, Xin-Wu Cui, Hua-Rong Ye</i>	
Amplitude Modulation and Baseband Delay-Multiply-And-Sum Beamforming for Improved Vessel Visualization with Volumetric Contrast-Enhanced Ultrasound.....	372
<i>Megan Yociss, Katherine Brown, Matthew Bruce, Kenneth Hoyt</i>	
Capacitive Micromachined Ultrasonic Transducer Array for Air-Coupled Lamb Wave Detection of Plate Structure	376
<i>Hui Zhang, Shaojie Li, Junjie Wang, Yongshuai Ma, Jing Sun, Zhuochen Wang</i>	
MEMS Bessel Beam Acoustic Transducer (MEMS-BBAT) with Air-Cavity Lens Based on Spiral Diffraction Grating for Particle Trapping.....	380
<i>Yuyu Jia, Zhenhuan Sun, Jiaqi Li, Lurui Zhao, Hai Liu, Teng Li, Song Liu</i>	
Frequency Modulated, Air-Coupled Ultrasound Generated by Fluidic Oscillators.....	384
<i>Christoph Strangfeld, Benjamin Böhling, Max Hauke, Thorge Schweitzer, Stefan Maack</i>	
Study of the LT/Quartz Bonded SAW Substrate for High Performance Filter Solutions	388
<i>Rei Goto, Keiichi Maki, Hiroyuki Nakamura</i>	
A Switchable Deep Beamformer for Passive Acoustic Mapping	392
<i>Yi Zeng, Hui Zhu, Xiran Cai</i>	
Investigation of Acoustic Underwater Propulsion with 36° Y-Cut Lithium Niobate Transducer	396
<i>Takumi Hirata, Deqing Kong, Fei Li, Minoru Kuribayashi Kurosawa, Manabu Aoyagi</i>	
9.5 GHz Solidly Mounted Bulk Acoustic Wave Resonator Using Third Overtone of Thickness Extension Mode in LiNbO ₃	400
<i>Michio Kadota, Fuyuko Yamashita, Shuji Tanaka</i>	
A Comparative Study of Acoustic Loss in Piezoelectric on Insulator (POI) Substrates	404
<i>Pengcheng Zheng, Shibin Zhang, Jinbo Wu, Liping Zhang, Hulin Yao, Hongtao Xu, Zhenghua An, Xin Ou</i>	
Coupling Power Ultrasound into Industrial Pipe Walls.....	408
<i>Kasper Peterzéns, Petro Moilanen, Timo Rauhala, Ari Salmi, Edward Hægström</i>	

Simultaneous Measurements of Vascular Strain and Wall Shear Stress in the Carotid Artery Based on Vector Flow Imaging and Vessel Wall Tracking in Duplex Mode	412
<i>Wenlong Xu, Yigang Du, Yuxi Liu, Xing An, Zhao Ling Lu, Yanbo Liu, Shuangshuang Li, Longfei Cong, Lei Zhu</i>	
Holding Force Characteristics of Levitation by Jet from Small Hole of a Levitated Object.....	416
<i>Kohei Aono, Manabu Aoyagi, Deqing Kong</i>	
Characterization of Low- Voltage Row-Column Addressed CMUTs for 3D Imaging Applications.....	419
<i>Tony Merrien, Audren Boulmé, Pascal Chatain, Dominique Certon</i>	
Dual-Band Acoustic Wave Filter Synthesis Based on the Conventional Standalone Ladder Topology	423
<i>Lluís Acosta, Eloi Guerrero, Carlos Caballero, Jordi Verdú, Pedro De Paco</i>	
Multi-Frequency Approach to Estimate the Roughness of Lung Surface, in Silico Study.....	427
<i>Federico Mento, Libertario Demi</i>	
Fabrication of an Array of Eccentric Sources for Freehand Optical Ultrasound Imaging.....	431
<i>Fraser T. Watt, Sacha Noimark, Adrien E Desjardins, Paul C. Beard, Erwin J. Alles</i>	
Ultrasonic Beam Transmission in the Backward-And Forward-Wave Frequency-Wavenumber Bands of a Fluid-Embedded Steel Plate	435
<i>Mathias Myrtveit Sæther, Per Lunde</i>	
Developing Real-Time Implementations of Non-Linear Beamformers for Enhanced Optical Ultrasound Imaging.....	439
<i>Fraser T. Watt, Paul C. Beard, Erwin J. Alles</i>	
A Numerical-Model-Based Optimization Strategy for Design and Fabrication of Transversely Isotropic Tissue-Mimicking Phantoms.....	443
<i>Jinping Dong, Wei-Ning Lee</i>	
Acceleration of Hierarchical Cascading Technique for Surface Acoustic Wave Device Simulations	446
<i>Dongchen Sui, Shibin Zhang, Hulin Yao, Pengcheng Zheng, Jinbo Wu, Liping Zhang, Xin Ou</i>	
Increased Displacement in Magnetomotive Ultrasound Imaging by Adding a Homogeneous Magnetic Field.....	450
<i>Jules Reniaud, Maria Evertsson, Roger Andersson, Tomas Jansson</i>	
Fourier-Domain Beamforming and Sub-Nyquist Sampling for Coherent Pixel-Based Ultrasound Imaging.....	454
<i>Hao Guo, Hui-Wen Xie, Guang-Quan Zhou, Nghia Q. Nguyen</i>	
AI-Powered Measurement of Ultrasonic Axial-Transmission Velocity for Pediatric Skeletal Development Evaluation	458
<i>Qing Li, Tho N. H. T. Tran, Jialin Guo, Kailiang Xu, Boyi Li, Lawrence H. Le, Dean Ta</i>	
A Lightweight Structure Detector on Cardiac Ultrasound Images of Multiple Views with Tailored NMS Algorithm.....	462
<i>Hongjian Jiang, Siying Wang, Qing Cao, Svein Arne Aase</i>	
Non-Invasive Quantification of Steatosis: A New Ultrasound Based Model to Predict Fatty Liver Content	466
<i>Laura De Rosa, Antonio Salvati, Ferruccio Bonino, Maurizia Rossana Brunetto, Libertario Demi, Francesco Faia</i>	

Comparison of More Or Less Noisy Quartz Crystal Resonators by X-Rays Scattering.....	470
<i>A. Pockarel, T. Garnier, J. Imbaud, F. Sthal</i>	
Quantification of in Vivo Muscle Elastic Anisotropy Factor by Steered Push Beams.....	473
<i>Ha-Hien-Phuong Ngo, Ricardo Andrade, Simon Chatelin, Javier Bruni, Nicolas Benech, Thomas Frappart, Christophe Fraschini, Antoine Nordez, Jean-Luc Gennisson</i>	
Estimation of Size of Red Blood Cell Aggregates Using Reference Power Spectra.....	477
<i>Mototaka Arakawa, Kyohei Higashiyama, Rina Takeyama, Shohei Mori, Satoshi Yashiro, Yasushi Ishigaki, Hiroshi Kanai</i>	
Rayleigh Wave Interaction with a Spherical Ball in Contact with a Plane Surface.....	481
<i>Aziz Bouzzit, Loïc Martinez, Andres Arciniegas, Salah-Eddine Hebaz, Nicolas Wilkie-Chancellor</i>	
A Study of Bandwidth Extension in Delay Multiply and Sum Beamforming Applied to Ultrasound Imaging.....	485
<i>Hui-Wen Xie, Hao Guo, Guang-Quan Zhou, Nghia Q. Nguyen, Richard W. Prager</i>	
Temperature and Dynamic Strain Measurements Using a Single SAWR Sensor	489
<i>David Leff, Shane Winters, Mauricio Pereira Da Cunha</i>	
Intravital Imaging of Ultrasound-Induced Blood Brain Barrier Opening Using Transgenic Mice with Two-Photon Microscopy	493
<i>Mengni Hu, Lu Xia, Xin Chen, Siping Chen, Yuanyuan Sheri</i>	
PMUT Structure Design with a Scar-Free Minimally Invasive Surgery Process on (111) Silicon Wafer.....	497
<i>Sheng Wu, Wei Li, Shuai Shao, Heng Yang, Tao Wu, Xinxin Li</i>	
Time Versus Frequency Domain Full Waveform Inversion for Ultrasound Imaging	501
<i>Ana B. Ramirez, Sergio A. Abreo, K. W. A. Van Dongen</i>	
Design of a Custom Flexible Ultrasound Transducer as an Implantable Cranial Sensor for Long-Term Post-Operative Monitoring of Brain Tumor Regrowth.....	505
<i>Kelley M. Kempfski Leadingham, Haley G. Abramson, Alexander Perdomo-Pantoja, Rasika Thombre, Joshua Liu, Madison Norman, Francisco Chavez, Kyle Morrison, Ian Suk, Chad Gordon, Mehran Armand, Amir Manbachi</i>	
Burr Distribution Describes Ultrasound Speckle Statistics of Soft Biological Tissues	509
<i>Sedigheh S. Poul, Stefanie J. Hollenbach, Kevin J. Parker</i>	
Breast Lesion Detection and Visualization Utilizing Artificial Intelligence and the H-Scan.....	513
<i>Jihye Baek, Avice M. O'Connell, Kevin J. Parker</i>	
Schlieren Visualization of Anisotropic Dual Slanted Plate Mesoscale Lens Action for Ultrasound.....	517
<i>Eetu Lampsijärvi, Igor V. Minin, Oleg V. Minin, Joni Mäkinen, Robin Wikstedt, Edward Hægström, Ari Salmi</i>	
Detecting Kidney Fibrosis Using H-Scan.....	521
<i>Jihye Baek, Eno Hysi, Xiaolin He, Darren A. Yuen, Michael C. Kolios, Kevin J. Parker</i>	
Adaptive Beamforming for Wireless Powering of a Network of Ultrasonic Implants	524
<i>Max L. Wang, Ajay Singhvi, Gift Nyikayaramba, Boris Murmann, Amin Arbabian</i>	

Improved Treatment of Head and Neck Cancer Using 3-D Focused Ultrasound-Mediated Cetuximab Drug Delivery	528
<i>Ryan Margolis, Junjie Li, Menitte Eroy, Dara Chanthavisay, Girgis Obaid, Kenneth Hoyt</i>	
Artifact Removal Factor for Circular-View Photoacoustic Tomography.....	532
<i>Soheil Hakakzadeh, Zahra Kavehvas, Manojit Pramanik</i>	
Tailored Acoustic Holograms with Phased Arrays.....	536
<i>Denys Iablonskyi, Felix Sundblad, Bruno Wuensch, Arto Klami, Ari Salmi, Edward Hæggström</i>	
Reconstruction of Fouling Distribution from Aggregate Observations.....	539
<i>Denys Iablonskyi, Haoyu Wei, Arto Klami, Ari Salmi, Edward Hæggström</i>	
COVID-19 Feature Detection with Deep Neural Networks Trained on Simulated Lung Ultrasound B-Mode Images	543
<i>Lingyi Zhao, Tiffany Clair Fong, Muyinatu A. Lediju Bell</i>	
Near-Spurious-Free Lithium Niobate Resonator for Piezoelectric Power Conversion with Q of 3500 and K_r^2 of 45%.....	546
<i>Kristi Nguyen, Eric Stolt, Weston Braun, Jeronimo Segovia-Fernandez, Sombuddha Chakraborty, Juan Rivas, Ruochen Lu</i>	
Robust Principal Component Analysis with Wavelet-Based Sparsity Promotion to Mitigate Reverberation Clutters for Ultrasound Attenuation Estimation.....	550
<i>U-Wai Lok, Ping Gong, Chengwu Huang, Shanshan Tang, Chenyun Zhou, Lulu Yang, Kymberly D. Watt, Matthew Callstrom, Joshua D. Trzasko, Shigao Chen</i>	
Affordable and Wireless Transducer Network to Detect Fouling in Pipes.....	554
<i>Petteri Salminen, Julius Korsimaa, Peetu Ihalainen, Denys Iablonskyi, Arto Klami, Ari Salmi, Edward Hæggström</i>	
Side-Shifted Dual PPM EMATs with Multiple Rows of Magnets and Reduced Lateral Gap by Flexible Printed Circuit Board Racetrack Coils	558
<i>Lucas M. Martinho, Alan C. Kubrusly, Iury S. Martins, Lei Kang, Steve Dixon</i>	
Using Crossed IDTs to Suppress Transverse Modes in SAW Resonators Based on POI Substrate	562
<i>Yidan Yin, Wei Jiang, Wen Huang, Anming Gao</i>	
2D Scalar Wave Model for Fast Analysis of Apodized BAW Devices.....	566
<i>Ting Wu, Yiwen He, Yu-Po Wong, Wuping Li, Jingfu Bao, Ken-Ya Hashimoto</i>	
Identification of B-Lines in Vivo Lung Ultrasound by the Evaluation of Characteristic Parameters Using Raw RF Data.....	570
<i>Haoyu Zhang, Quanlong Ma, Mingxi Wan, Hui Zhong</i>	
Angle Monitoring of Directional Energy Deposition for Catheter-Based Ultrasound Thermal Therapy Using Fitted Changes in Ultrasound Backscatter Energy Imaging: Ex Vivo Investigation	574
<i>Chengzhi Yang, Diya Wang, Peter D. Jones, Chris J. Diederich, Pragma Gupta, Muhammad Zubair, Everette C. Burdette</i>	
Placental Elastography Reveal Viscoelastic Signatures Ex-Vivo with Single-Track Location Maximum a Posteriori Probability Spectroscopy	578
<i>Siladitya Khan, Stefanie Hollenbach, Soumya Goswami, Fan Feng, Stephen A. McAleavey</i>	
Position Estimation of Slowly Moving Obstacles Using Ultrasonic Sensor Array	582
<i>Asuka Tsujii, Takashi Kasashima, Hiroyuki Hatano, Takaya Yamazato</i>	

Acoustic Hologram Lens Made of Nanoparticle-Epoxy Composite Molding for Directing Predefined Therapeutic Ultrasound Beams	586
<i>Jinwook Kim, Sandeep Kasoji, Phillip G. Durham, Paul A. Dayton</i>	
Evaluation of Ultrasound Scattering Models Adapted for Two Types of Scatterers to Extract Scatterer Parameters from Cell-Pellet Biophantoms	590
<i>Pauline Muleki-Seya, Aiguo Han, William D. O'Brien</i>	
Development of Implicit Representation Method for Freehand 3D Ultrasound Image Reconstruction of Carotid Vessel	594
<i>Sheng Song, Yunqian Huang, Jiawen Li, Man Chen, Rui Zheng</i>	
Development of a High Frequency Forward-Looking Phased-Array Transducer in Guiding Interventional Procedures	598
<i>Jiabing Lv, Ninghao Wang, Feng Gao, Zhitian Shen, Yaoyao Cui, Hongwei Li, Xiaohua Jian</i>	
Improvement of Internal Defect Detection Accuracy Using Correlation Processing with the Emission Waveform for Noncontact Acoustic Inspection Method	602
<i>Tsuneyoshi Sugimoto, Yutaka Nakagawa, Kazuko Sugimoto, Itsuki Uechi, Noriyuki Utagawa, Chitose Kuroda</i>	
Effects of Polydispersity and High Scatterer Concentration on Quantitative Ultrasound Estimates.....	606
<i>Olivier Lombard, Mylena Audenay, Emilie Franceschini</i>	
Theoretical Investigation of Wideband Longitudinally Coupled Resonator Filter Using Lithium Niobate Thin Plates	610
<i>Wu-Ping Li, Ting Wu, Bin Shi, Xue-Qian Wu, Jing-Fu Bao, Ken-Ya Hashimoto</i>	
The Response of Prefrontal and Parietal Lobes to Acoustoelectric Signal.....	613
<i>Peishan Huang, Xizi Song, Xinrui Chen, Yufeng Ke, Dong Ming</i>	
A Simple Technique to Evaluate Lateral Leakage and Transverse Mode Behaviors of Reflectors in SH-Type SAW Resonator	617
<i>Xue-Qian Wu, Yi-Wen He, Bin Shi, Wu-Ping Li, Jing-Fu Bao, Ken-Ya Hashimoto</i>	
Bioinspired Transducer and Second-Generation Voltage Conveyor for a SONAR System	620
<i>Gianluca Barile, Salvatore A. Pullano, Antonino S. Fiorillo, Giuseppe Ferri</i>	
In Vivo Super Resolution Ultrasound Imaging Using the Erythrocytes - SURE	623
<i>Jørgen Arendt Jensen, Mikkel Schou, Sofie Bech Andersen, Borislav G. Tomov, Stinne Byrholdt Søgaard, Charlotte Mehlin Sørensen, Michael Bachmann Nielsen, Carsten Gundlach, Hans Martin Kjer, Anders Bjorholm Dahl, Matthias Bo Stuart</i>	
High Frame Rate Speckle Tracking Algorithm Towards a Real-Time Implementation	627
<i>Marta Orłowska, Alessandro Dallai, Piero Tortoli, Jan D'Hooge, Alessandro Ramalli</i>	
Comparative Study of Vector Measurement of Nonlinearity in SAW Devices Using Cross Domain Analyzer and Nonlinear Vector Network Analyzer	631
<i>Ryo Nakagawa, Masahiro Gawasawa, Haruki Kyoya, Ken-Ya Hashimoto</i>	
Analog Cancellation of Unwanted Reflections for Enhanced Ultrasound Microscopy.....	635
<i>Martin Weber, Jere Hyvönen, Antti Meriläinen, Felix Sundblad, Ari Salmi, Edward Hægström</i>	
Intravital Imaging of Ultrasound-Mediated Macromolecule Delivery Through the Blood Tumor Barrier in a Murine Glioma Model with Two-Photon Microscopy.....	639
<i>Weifeng Huang, Lu Xia, Xin Chen, Siping Chen, Yuanyuan Shen</i>	

High Temperature Performance Over 700°C of LiNbO ₃ -Based Ultrasonic Transducer	643
<i>Naoki Zaito, Naoki Kambayashi, Makiko Kobayashi</i>	
Research of Lamb Wave 2-D Propagation in CFRP Plates and Its Application in Delamination Damage Detection	647
<i>Hui Zhang, Jing Sun, Si Liu, Shaojie Li, Xiaobo Rui</i>	
Improved Background Noise Suppression and Microbubbles Localization for Ultrasound Localization Microscopy Using Acoustic Sub-Aperture Processing.....	651
<i>Lijie Huang, Weitao Man, Rui Wang, Aiping Zhang, Xingyue Wei, Qiong He, Jianwen Luo</i>	
Wideband Dispersion Reversal Based Corrosion Inspection Using A0 Mode Lamb Waves.....	655
<i>Feiyao Ling, Honglei Chen, Dean Ta, Kailiang Xu</i>	
Pulse Wave Velocity Doppler Measurement of Ulnar Artery Using a High-Frequency Probe.....	659
<i>Maxime Benchemoul, David Savéry, Claudine Géhin, Bertrand Massot, Guillaume Ferin, Philippe Vince, Martin Flesch</i>	
Broadband Stack-Layer 3 MHz – 11 MHz Dual-Frequency Ultrasound Transducers for Photoacoustic Imaging	664
<i>Yiqi Cai, Xiaofei Luo, Lijun Xu, Zeyu Chen, Jianguo Ma</i>	
3D Ultrasound Parametric Modeling Imaging for Spine Deformity – a Preliminary Study.....	667
<i>Yuchong Gao, Hongye Zeng, Jianhao Zhao, Mingbo Zhang, Rui Zheng</i>	
An Integrated High Power Arbitrary Waveform Generator and Modulator.....	671
<i>Stefano Passi, Federico Guanziroli, Stefano Ottaviani, Anna Moroni, Andrea Gambero, Davide Ghisu</i>	
Segmentation of Parasternal Long Axis Views Using Deep Learning	675
<i>Erik Smistad, Håvard Dalen, Bjørnar Grenne, Lasse Løvstakken</i>	
Preventing Formation of Metal Dendrites During Electroplating Using External Ultrasonic Actuators	679
<i>Julius Korsimaa, Topi Pudas, Anton Nolvi, Ari Salmi, Sasu Tarkoma, Edward Hæggström</i>	
Tracking-Based Mitral Annular Plane Systolic Excursion (MAPSE) Measurement Using Deep Learning in B-Mode Ultrasound.....	682
<i>Erik Smistad, Andreas Østvik, Jahn Frederik Grue, Håvard Dalen, Lasse Lovstakken</i>	
Validation of Intravascular Ultrasound Pressure Gradient Estimation Using Micro-Tip Catheters	686
<i>Lars Emil Haslund, Matthias Bo Stuart, Marie Sand Traberg, Jørgen Arendt Jensen</i>	
Non-Standard Functions Enabling Feasible Microwave- Acoustic Ladder Filters.....	690
<i>Carlos Caballero, Lluís Acosta, Eloi Guerrero, Jordi Verdú, Pedro De Paco</i>	
Analysis of Longitudinal Leaky SAWs on Bonded Structures Consisting of Similar and Dissimilar Materials.....	694
<i>Yudai Fujii, Masashi Suzuki, Shoji Kakio</i>	
Deposition and Evaluation of Highly Crystallized Ta ₂ O ₅ Piezoelectric Thin Film on Pt Crystal Film.....	696
<i>Keisuke Matsuura, Masashi Suzuki, Shoji Kakio, Masanori Kodera, Hiroshi Funakubo</i>	
In Vivo 3D Super-Resolution Ultrasound Imaging of a Rat Kidney Using a Row-Column Array	698
<i>Iman Taghavi, Mikkel Schou, Nathalie Sarup Panduro, Sofie Bech Andersen, Borislav G. Tomov, Charlotte Mehlin Sørensen, Matthias Bo Stuart, Jørgen Arendt Jensen</i>	

Compensation for Velocity Underestimation in 2D Super-Resolution Ultrasound.....	701
<i>Iman Taghavi, Mostafa Amin-Naji, Mikkel Schou, Martin Lind Ommen, Kitty Steenberg, Niels Bent Larsen, Erik Vilain Thomsen, Jørgen Arendt Jensen</i>	
A Spurious Free SH-SAW Resonator Employing a Novel Multilayer Stack.....	704
<i>Ventsislav Yantchev, Andreja Erbes, Kiryl Kustanovich, Yuancheng Ji</i>	
Coronary Plaque Classification of Intravascular Ultrasound Images Based on a Multi-Stage Deep Classifier Cascades.....	708
<i>Xinze Li, Peng Song, Yuxiang Lin, Tiantian Lv, Yingmei Zhang, Yang Jiao, Junbo Li, Yaoyao Cui, Jing Yang</i>	
Super Resolution Ultrasound Using Recursive Imaging of Highly Dense Scatterers	711
<i>Mostafa Amin-Naji, Iman Taghavi, Matthias Bo Stuart, Jørgen Arendt Jensen</i>	
A General Equivalent Circuit Model for PMUTs Array Working in Multi-Vibration Modes	715
<i>Tingzhong Xu, Lixiang Wu, Javad Abbaszadeh, Mohssen Moridi</i>	
An Analysis of Ultrasound Stimulation Effects on C. Elegans Organisms Motility	719
<i>Andrea Francovich, Sara Raimondi, Loredana Marchese, Alma Baruffaldi, Sofia Giorgetti, Giulia Matrone</i>	
Four-Leaf Clover Shaped Phononic Crystals for Quality Factor Improvement of AlN Contour Mode Resonator	723
<i>Ping-Jing Chen, Temesgen Bailie Workie, Jun-Jin Feng, Jing-Fu Bao, Ken-Ya Hashimoto</i>	
Synthetic Aperture High Quality B-Mode Imaging with a Row-Column Array Compared to Linear Array Imaging	726
<i>Jorgen Arendt Jensen, Mikkel Schou, Martin Lind Ommen, Kitty Steenberg, Erik Vilain Thomsen, Borislav G. Tomov, Nathalie Sarup Panduro, Charlotte Mehlin Sorensen, Matthias Bo Stuart</i>	
Microbubble Detection with Adaptive Beamforming for Ultrasound Localization Microscopy	730
<i>Alexandre Corazza, Pauline Muleki-Seya, Abderrahmane Walid Aissani, Olivier Couture, Adrian Basarab, Barbara Nicolas</i>	
In-Vivo Monitoring of Liver Regeneration by Ultrasound Localization Microscopy: A Feasibility Study.....	734
<i>Rui Wang, Yuelei Hu, Lijie Huang, Qiong He, Yunfang Wang, Lin Zhang, Jianwen Luo</i>	
Comparative Analysis of CMUT and PZT Transducers for Coded Excitation	738
<i>Mudabbir Tufail Bhatti, Borislav Gueorguiev Tomov, Søren Elmin Diedrichsen, Matthias Bo Stuart, Erik Vilain Thomsen, Jørgen Arendt Jensen</i>	
A New Adaptive Imaging Technique Using Generalized Delay Multiply and Sum Factor.....	742
<i>Mahsa Sotoodeh Ziksari, Babak Mohammadzadeh Asl, Marcus Ingram, Jan D'Hooge</i>	
A Feasibility Study of Quantitative Measure of the State of the Lung by Evaluation of Injury Depth from Lung Ultrasound.....	746
<i>Quanlong Ma, Haoyu Zhang, Hui Zhong, Hongmei Zhang, Mingxi Wan</i>	
Direct Wave Propagation Analysis for Ice Accretion Assessment on a Composite Plate Using Ultrasonic Guided Waves.....	750
<i>Faisal Mehmood Shah, Jochen Moll, Leandro Maio, Vittorio Memmolo</i>	
High Resolution Measurement of Coatings Inside Thick, Hot, Steel Pipes	754
<i>Claire Thring, Daniel Irving, Dave Hughes</i>	

Design and Holographic Field Reconstruction of Ultrasonic Lenses for Drug Delivery in non-Human Primates	757
<i>Diana Andrés, Alicia Carrión, Nathalie Lamothe, José A. Pineda-Pardo, Noé Jiménez, Francisco Camarena</i>	
On Estimation of Sound Velocity and Attenuation in Common 3D-Printing Filaments.....	761
<i>Shafaq Zia, Johan E. Carlson, Pia Åkerfeldt</i>	
Quality Factor Degradation Due to the In-Plane Misorientation in POI-SAW Resonators.....	765
<i>Jinbo Wu, Shibin Zhang, Liping Zhang, Pengcheng Zheng, Hongyan Zhou, Hulin Yao, Quhuan Shen, Minghui Luo, Tao Wu, Xin Ou</i>	
Optimal Command of the Nonlinear Elastic Wave Spectroscopy Method (NWMS).....	769
<i>Nesrine Houhat, Sébastien Ménigot, Iulian Voicu, Redouane Draï, Jean-Marc Girault</i>	
A Feasibility Study of Low-Frequency Ultrasound Tomography for Human Thorax	773
<i>Tong Zhang, Haolin Zhang, Yeyu Cao, Rui Guo, Hongyu Zhou, Maokun Li, Fan Yang, Shenheng Xu</i>	
LIPUS Stimulation of the Knee Cartilage: In-Vitro to In-Vivo Translation	777
<i>Paolo Cabras, Andrea Cafarelli, Leonardo Ricotti, Erik Dumont</i>	
Robust Thickness Measure in Ultrasound Image Sequences: A Novel Active Contour Tracking Method for Characterizing Muscle Fatigue.....	781
<i>Hongtao Liang, Yichen Feng, Jianzhong Guo</i>	
Compressive Imaging with Spatial Coding Masks on Low Number of Elements: An Emulation Study.....	785
<i>Yuyang Hu, Michael Brown, Didem Dogan, Geert Leus, Pieter Kruizinga, Antonius F. W. Van Der Steen, Johannes G. Bosch</i>	
5 GHz Lamb Wave Wi-Fi Channel Filters	789
<i>Alexandre Reinhardt, Marie Bousquet, Alice Joulie, Elisa Soulat, Catherine Maeder-Pachurka, Pierre Perreau, Grégory Enyedi, Gaël Castellan, Julien Delprato, Bruno Reig, Jean-Luc Thomassin, Hossein Alavi, Paul Fischer</i>	
Segmentation of 2D Cardiac Ultrasound with Deep Learning: Simpler Models for a Simple Task	793
<i>Artem Chernyshov, Andreas Østvik, Erik Smistad, Lasse Løvstakken</i>	
Performance Comparison Between Single Layer and Several Configurations of Bilayer P(VDF-TrFE) Transducers in Pulse-Echo Measurements	797
<i>Sean Toffessi Siewe, Samuel Callé, Louis-Pascal Tran-Huu-Hue, Aline Banquart, Jean-Marc Grégoire, Stéphanie Chevalliot, Arnaud Capri, Franck Levassort</i>	
Ring Array Passive Acoustic Mapping Using Hybrid Heterogeneous Angular Spectrum Method.....	801
<i>Hui Zhu, Yiming Huang, Gaofei Jin, Xiran Cai</i>	
Myocardial Attenuation Quantification for Diagnosis of Ischemic Heart Disease.....	805
<i>Young-Min Kim, Gu-Il Jung, Myeong-Gee Kim, Seok-Hwan Oh, Hyuk-Sool Kwon, Hyeon-Min Bae</i>	
Quasi-Omnidirectional Shear Wave Generation Using Acoustic Vortices for Elastography.....	810
<i>Enrique González-Mateo, Noé Jiménez, Francisco Camarena</i>	
Detection of Spine Curve and Vertebral Level on Ultrasound Images Using DETR.....	814
<i>Yiwen Tang, Hongbo Chen, Liyue Qian, Songhan Ge, Mingbo Zhang, Rui Zheng</i>	

Nonlinear Simulation of Modulation Pulse Sequencing for Contrast-Enhanced Ultrasound (CEUS) Imaging.....	818
<i>Shuangyi Cheng, Junjin Yu, Xingyi Guo, Dean Ta, Kailiang Xu</i>	
Photoacoustics Spectral Analysis for in Vivo Detection of Collagen Contents in Cancers.....	822
<i>Jiayan Li, Yingna Chen, Wenxiang Zhi, Qian Cheng</i>	
Air-Coupled Capacitive Micromachined Ultrasonic Transducer for Temperature Field Reconstruction.....	826
<i>Hui Zhang, Yongshuai Ma, Shaojie Li, Si Liu, Junjie Wang, Zhuochen Wang</i>	
Wearable Water-Filled Soft Transparent Pressure Sensor Based on Acoustic Guided Waves	830
<i>Yuan Lin, David Chiasson, Peter B. Shull</i>	
Scaling-Up the Ultrasound-Enhanced Electrospinning Device.....	834
<i>Henri Österberg, Joni Mäkinen, Johannes Schavikin, Fabio Valoppi, Dmitry Nikolaev, Ivo Laidmäe, Jyrki Heinamaki, Ari Salmi, Edward Hægström</i>	
Real-Time Super-Resolution Ultrasound Imaging Using GPU Acceleration.....	838
<i>Sebastian Kazmarek Præsius, Matthias Bo Stuart, Mikkel Schou, Bernd Dammann, Hans Henrik Brandenburg Sørensen, Jørgen Arendt Jensen</i>	
Improving the Quality of Monostatic Synthetic-Aperture Ultrasound Imaging Through Deep-Learning-Based Beamforming	842
<i>Eleonora Toffali, Edoardo Spairani, Alessandro Ramalli, Giulia Matrone</i>	
Generation of Realistic Simulated B-Mode Image Texture with a GAN	846
<i>Nolann Lainé, Guillaume Zahnd, Olivier Bernard, Maciej Orkisz, Hervé Liebgott</i>	
Acoustic Wave Multiplexer Modules: A Completely Analytical Synthesis Method	850
<i>Eloi Guerrero, Lluís Acosta, Jordi Verdú, Pedro De Paco</i>	
Orthogonal Matching Pursuit Based Sparse Dispersive Radon Transform for Ultrasonic Guided Mode Extraction	853
<i>Shuhang Zheng, Honglei Chen, Feiyao Ling, Jean-Gabriel Minonzio, Dean Ta, Kailiang Xu</i>	
3D Localization of Scatterers with a Spiral-Shaped Acoustic Lens.....	857
<i>Luzhen Nie, Matthieu Toulemonde, Meng-Xing Tang, Steven Freear, Sevan Harput</i>	
Spurious-Free Shear-Horizontal SAW Resonators Using LiTaO ₃ /SiO ₂ /Si Substrate	861
<i>Shuxian Wu, Hangyu Qian, Zonglin Wu, Feihong Bao, Gongbin Tang, Feng Xu, Jie Zou</i>	
A 4.5 GHz Surface Excitation Solidly Mounted Microacoustic Resonator with 20% Coupling	865
<i>M. Solal, T. Daniel, P. Rath, J. McGann, C. Huck, S. Inoue, H. Henry, C. Hella, D. Allen</i>	
Single Shot Pulse-Echo Based Attenuation Coefficient Estimation for Ultrasound Contrast Agents.....	869
<i>Jasleen Birdi, Sophie V. Heymans, Alexander Bertrand, Jan D'Hooge</i>	
Blood-Flow Volume Estimation with Bi-Plane Imaging.....	872
<i>Claudio Giangrossi, Alessandro Ramalli, Melissa De Cianni, Francesco Guidi, Piero Tortoli</i>	
Miniature Air Coupled Ultrasound Data Acquisition System for Field Application of Resonance Spectroscopy	876
<i>Arturas Aleksandrovas, Linas Svilainis, Andrius Chaziachmetovas, Valdas Eidukynas, Zilvinas Nakutis, Paulius Tervydís, Tomas Gomez Alvarez-Arenas</i>	

Integration of Forward-Viewing and Side-Viewing Ultrasound Transducers in an Intravascular Sonothrombolysis Catheter	879
<i>Bohua Zhang, Huaiyu Wu, Jinwook Kim, Paul Dayton, Zhen Xu, Xiaoning Jiang</i>	
A Feasibility Study of 3D Motion Compensation in 3D Diverging Wave Compounding	883
<i>Yinran Chen, Jianwen Luo, Xiongbiao Luo</i>	
Air Coupled Probe Integrity Test Using Same Type Probe on Parabolic Mirror	887
<i>Linās Svilainis, Andrius Chaziachmetovas, Arturas Aleksandrovas, Darius Kybartas, Tomas Gomez Alvarez-Arenas</i>	
Local Pressure Estimation Using Elastography and Ultrasensitive Pulsed-Wave Doppler	891
<i>Lenin Chinchilla, Aurelie Pecorella, Dima Rodriguez, Thomas Frappart, Christophe Fraschini, Jean-Michel Correas, Jean-Luc Gennisson</i>	
A Combination of Chirp Spread Spectrum and Frequency Hopping for Guided Waves-Based Digital Data Communication with Frequency Steerable Acoustic Transducers.....	895
<i>Federica Zonzini, Masoud Mohammadgholiha, Luca De Marchi</i>	
Experimental Demonstration of the Coherent Use of Two Sparse Arrays for 3-D Imaging	899
<i>Laura Peralta, Daniele Mazierli, Alberto Gomez, Joseph V Hajnal, Piero Tortoli, Alessandro Ramalli</i>	
Skewedness as a Signature of Dean Flow Measured by Echo-PIV	902
<i>Ashkan Ghanbarzadeh-Dagheyan, Erik Groot Jebbink, Michel Reijnen, Michel Versluis</i>	
H-Scan Ultrasound Imaging for the Classification of Thyroid Tumors	906
<i>Mawia Khairalseed, Rosa Laines, Joseph Pinto, Jorge Guerrero, Himelda Chavez, Claudia Salazar, Gary R. Ge, Roberto J. Lavarello, Kenneth Hoyt</i>	
Prior Based Cascading of Attention Unets for Segmentation to Estimate Fat and Lean Mass from 3D Fetal Ultrasound Imaging	909
<i>Rohit Pardasani, Hrithik Auchar, Mansi Goel</i>	
Automatic Scoring of COVID-19 LUS Videos Using Cross-Correlation-Based Features Aggregated from Frame-Level Confidence Levels Obtained by a Pre-Trained Deep Neural Network.....	913
<i>Sajjad Afrakhteh, Federico Mento, Umair Khan, Laura De Rosa, Noreen Fatima, Zihadul Azam, Francesco Tursi, Andrea Smargiassi, Riccardo Inchingolo, Tiziano Perrone, Giovanni Iacca, Libertario Demi</i>	
Enabling Spatial Multiplexing in Guided Waves-Based Communication: The Case of Quadrature Amplitude Modulation Realized Via Discrete Frequency Steerable Acoustic Transducers.....	916
<i>Masoud Mohammadgholiha, Federica Zonzini, Luca De Marchi</i>	
Miniaturized Catheter-Integrated Photoacoustic Ablation Monitoring System: A Feasibility Study.....	920
<i>Shang Gao, Ashiqur Rahaman, Hiroshi Ashikaga, Henry R. Halperin, Haichong K. Zhang</i>	
Simultaneous Orientation Locking and Translation of Samples with Phased Arrays	924
<i>Mikko Korhonen, Denys Iablonskyi, Felix Sundblad, Bruno Wuensch, Axi Holmström, Ari Salmi, Edward Hæggström</i>	
Measuring Drug Release Induced by Thermal and Non-Thermal Effects of Ultrasound in a Nanodrug Delivery System	927
<i>Tyler Hornsby, Farshad Moradi Kashkooli, Anshuman Jakhmola, Michael C. Kolios, Jahangir Tavakkoli</i>	

Formulas for Maximum Appropriate Hydrophone Sensitive Element Size and Hydrophone Spatial Averaging Correction Factors for Therapeutic Ultrasound System Characterization	931
<i>Keith Wear, Anant Shah, Christian Baker</i>	
Focused-Ultrasound Blood-Brain Barrier Opening Promotes Neuroprotective Microglia	935
<i>Alina R. Kline-Schoder, Sana Chintamen, Vilas Menon, Steven G. Kernie, Elisa E. Konofagou</i>	
High Performance Large-Area Polymeric PMUT Phased Arrays in Air.....	938
<i>Christopher Chare, Pieter Gijsenbergh, Yongbin Jeong, Paul Heremans, Jan Genoe, David Cheyns</i>	
Hydrophone Spatial Averaging Correction for High-Frequency Arrays.....	942
<i>Keith Wear, Anant Shah</i>	
Spurious Modes Metric Definition for Machine Learning Aided MEMS Design.....	946
<i>Luca Colombo, Marco Ceran, Matteo Rinaldi</i>	
Transparent Gellan Gum as an Efficient Coupling Media for Photoacoustic Imaging Applications	949
<i>Eric Reichel, Christopher M. Salinas, Clara Curiel-Lewandrowski, Russell S. Witte</i>	
Bone Cutting Performance of Ultrasonic Surgical Tools Incorporating PZT Piezoceramic and Mn:PIN-PMN-PT Piezocrystal.....	953
<i>Xuan Li, Nicola Giuseppe Fenu, Sandy Cochran, Margaret Lucas</i>	
Joint Inversion of Acoustic and Electromagnetic Wave Fields	957
<i>Eva M. L. Scherders, D. J. Verschuur, K. W. A. Van Dongen</i>	
Comparison of Localization Methods for 3D Super-Resolution Ultrasound Imaging	961
<i>Bingxue Wang, Jipeng Yan, Kai Riemer, Matthieu Toulemonde, Joseph Hansen-Shearer, Meng-Xing Tang</i>	
The COM Model Including the Bulk Wave Scattering at the End of IDTs in Synchronous Resonators	964
<i>Aleh Loseu, Victor Plessky</i>	
Elastic Full-Waveform Inversion for Transcranial Ultrasound Computed Tomography Using Optimal Transport	968
<i>Patrick Marty, Christian Boehm, Andreas Fichtner</i>	
Transportation of Granular Materials with Ultrasonic Augers.....	972
<i>Xuan Li, Xiaoni Li, Tianlu Huang, Andrew Feeney, Kevin Worrall, Patrick Harkness</i>	
Quantitative Ultrasound Assessment of Red Blood Cell Aggregation Alongside Photoacoustic-Based Oxygen Saturation in the Human Radial Artery	976
<i>Taehoon Bok, Eno Hysi, Michael C. Kolios</i>	
Matching-Network Boosting Enabling Reconfigurable pMUTs for IoT Sensor Node Applications	979
<i>Gabriel Giribaldi, Bernard Herrera Soukup, Pietro Simeoni, Luca Colombo, Matteo Rinaldi</i>	
An Adaptive Acoustic Output Selection Method Feasible for Implementation on Existing Clinical Systems.....	983
<i>Matthew Huber, Katelyn Flint, Gregg Trahey</i>	
Enhanced Resolution Phase Transformations in a Nitinol Cymbal Ultrasonic Device	987
<i>Struan Smith, Xuan Li, Mahshid Hafezi, Paul Barron, Margaret Lucas, Andrew Feeney</i>	

Field of View and Resolution Improvement in Coprime Sparse Synthetic Aperture Ultrasound Imaging.....	991
<i>Vahid Amin Nili, Mina Ezati, Yan Yan, Zahra Kavehvasht, Mohammad Mehrmohammadi</i>	
Patient-Specific Treatment Planning for Clinical Interstitial Ultrasound Thermal Ablation of Focal Prostate Cancer.....	995
<i>Pragya Gupta, Tamas Heffter, Muhammad Zubair, I-Chow Hsu, E. Clif Burdette, Chris J. Diederich</i>	
Deep Learning for Modeling of Sound Pressure Fields of Real-World Ultrasound Transducers	999
<i>Payal Gupta, Johan E. Carlson</i>	
Human Observer Sensitivity to Temporal Noise in Ultrasound Imaging	1003
<i>Matthew Huber, Katelyn Flint, Gregg Trahey</i>	
Fast Imaging of Crack Defects in Pipes Using Fourier-Domain Migration	1007
<i>Fatemeh Mazinani, Daler Rakhmatov, Reza Zahiri, Jay Hope, Graham Manders</i>	
Optimized Transmission Electrical Broadband Impedance Matching for PolyCMUT	1011
<i>Gabriel Guerreiro, Ziqiang Chen, Carlos D Gerardo, Robert Rohling, Edmond Cretu</i>	
PhocoSpace: An Open-Source Simulation Package to Implement Photoacoustic Spatial Coherence Theory	1015
<i>Michelle T. Graham, Muyinatu A. Lediju Bell</i>	
Combined Ultrasound and Light Backscattering Spectroscopy for Cancer Characterization: A Proof of Concept	1020
<i>Cyril Malinet, Bruno Montcel, Aurélie Dutour, Hervé Liebgott, Pauline Muleki-Seya</i>	
Multifrequency Liver Shear Wave Absolute Vibro-Elastography with an xMATRIX Array - 2D Vs. 3D Comparison Study.....	1024
<i>Qi Zeng, Shahed Mohammed, Tajwar Abrar Aleef, Emily H. T. Pang, Changhong Hu, James Jago, Robert Rohling, Septimiu E. Salcudean</i>	
Single- PZT- Fiber Transducers for 3D Ultrasound Computed Tomography: Characterization and Modeling	1029
<i>Martin Angerer, Michael Zapf, Sylvia Gebhardt, Nicole V. Ruiter</i>	
An Electrical-Feedback Based Bandwidth Extension Technique of Piezoelectric Micromachined Ultrasonic Transducers for Airborne Application	1033
<i>Tingzhong Xu, Javad Abbaszadeh, Dominik Holzmann, Lixiang Wu, Mohssen Moridi</i>	
Ultrathin, High Sensitivity Polymer-Based Capacitive Micromachined Ultrasound Transducers (polyCMUTs) for Acoustic Emission Sensing in Fiber Reinforced Polymers.....	1037
<i>Jonas Welsch, Edmond Cretu, Robert Rohling, Carlos D. Gerardo</i>	
Short-Wave Photoacoustic Lipid Imaging (SW-PALI) for Detection of Early-Onset Alzheimer's Disease	1042
<i>Christopher M. Salinas, Eric Reichel, Russell S. Witte</i>	
Coherence from REFoCUS Compared to Retrospective Transmit Beamforming	1045
<i>Ole Marius Hoel Rindal, Anders Vrålstad, Tore Grüner Bjåstad, Andreas Austeng, Svein-Erik Måsøy</i>	
Rotating Acoustic Drills by the Interference of Detuned Vortices.....	1049
<i>Noé Jiménez, Enrique González-Mateo, Francisco Camarena, Kestitis Staliunas</i>	

Ultrasound Pulse Waveform Modulation with Gauss Window for Acoustoelectric Imaging.....	1052
<i>Haipeng Yuan, Xizi Song, Gangnan Han, Xin Zhao, Dong Ming</i>	
Numerical Investigation of Unidirectional Generation of Circumferential SH Waves Applied to Defect Detection in Pipe.....	1055
<i>Lucas M. Martinho, Alan C. Kubrusly, Lei Kang, Jean Pierre Von Der Weid, Steve Dixon</i>	
Physics-Informed Neural Networks with Resampling Technique to Model Ultrasound Wave Propagation of a Multi-Element Transducer	1059
<i>Shaikhah Alkhadhr, Mohamed Almekkawy</i>	
Super-Resolution Imaging of Cerebral Vasculature in Transgenic Alzheimer's Disease Mice with Ultrasound Localization Microscopy	1063
<i>Yingtao Liao, Xin Chen, Siping Chen, Haoming Lin, Yuanyuan Shen</i>	
Effects of Beam Steering Angle in Vector Doppler Method with Plane Wave Imaging.....	1067
<i>Hideyuki Hasegawa, Masaaki Omura, Ryo Nagaoka</i>	
A Combined Detection for Debonding in Honeycomb Sandwich Structure Based on Air-Coupled Guided Wave and C-Scan	1071
<i>Hui Zhang, Si Liu, Jing Sun, Yongshuai Ma, Xiaobo Rui</i>	
A Nonlinear Analysis of Surface Acoustic Waves in ST-Cut Quartz Crystals	1075
<i>Haoliang Wu, Rongxing Wu, Tingfeng Ma, Yahui Tian, Honglang Li, Ji Wang</i>	
Development of a Wearable Ultrasound Transducer for Sensing Muscle Activities in Assistive Robotics Applications: In Vivo Study.....	1078
<i>Xiangming Xue, Bohua Zhang, Sunho Moon, Guo-Xuan Xu, Chih-Chung Huang, Nitin Sharma, Xiaoning Jiang</i>	
Elasticity Measurement of Radial Arterial Wall Considering Vessel Shape Change Caused by Pushing Pressure Applied by Ultrasonic Probe	1082
<i>Mototaka Arakawa, Yuto Shoji, Shohei Mori, Shigeo Ohba, Kazuto Kobayashi, Hiroshi Kanai</i>	
A New Sound Speed Reconstruction Algorithm for Breast Tissue in Ultrasound Computed Tomography	1085
<i>Yue Zhao, Zhiyuan Li, Nuomin Zhang, Hao Huang, Yu Yuan, Jing Jin</i>	
Study of Electrode Configuration for Downsizing of SAW Resonators on Low-Cut Lithium Niobate	1089
<i>Bin Shi, Zhao-Hui Wu, Wu-Ping Li, Xue-Qian Wu, Jing-Fu Bao, Ken-Ya Hashimoto</i>	
A Piezoelectric Gyroscope with Tilted C-Axis ScAlN Thin-Films.....	1092
<i>Yuna Koike, Ryo Seki, Takahiko Yanagitani</i>	
Machine Learning Improves Early Detection of Liver Fibrosis by Quantitative Ultrasound Radiomics.....	1096
<i>Maryam Al-Hasani, Laith R Sultan, Hersh Sagreiya, Theodore W Cary, Mrigendra B Karmacharya, Chandra M Sehgal</i>	
Deep Learning-Based 3D Beamforming on a 2D Row Column Addressing (RCA) Array for 3D Super-Resolution Ultrasound Localization Microscopy.....	1100
<i>Jihun Kim, Zhijie Dong, Matthew R. Lowerison, Nathiya V. Chandra Sekaran, Qi You, Daniel A. Llano, Pengfei Song</i>	
Hybrid FEA & Fresnel Diffraction Simulation of 3D GHz Acoustic Meta-Lens	1104
<i>Xing Haw Marvin Tan, Viet Phuong Bui, Zhaifeng Yang, Ching Eng Png, Amit Lal</i>	

An Equivalent Circuit Model of PMUTs with Clamped and Simply-Supported Plates.....	1107
<i>Ira O. Wygant, Mario Kupnik</i>	
Comparison of Waveform Modulation Methods Used in Pattern Interference Radiation Force Neuromodulator.....	1111
<i>Young Hun Kim, Jeong Nyeon Kim, Kwan Kyu Park, Kamyar Firouzi, Butrus T. Khuri-Yakub</i>	
Cardiac Shear Wave Speed Estimation in 3D: An in Silico and in Vivo Study	1115
<i>Ekaterina Seliverstova, Annette Caenen, Pedro Santos, Konstantina Papangelopoulou, Jan D'Hooge</i>	
First-In-Human H-Scan Ultrasound Imaging of Breast Cancer.....	1118
<i>Swapnil Dolui, Dominique James, Brian Trinh, Priscilla Machado, Luca Antonio Forte, Jessica Porembka, Basak Dogan, Flemming Forsberg, Kibo Nam, Kenneth Hoyt</i>	
First-Order Shear Horizontal Mode Resonators Design of High k_t^2 Based on LiNbO ₃ Thin Film.....	1122
<i>Yang Li, Yushuai Liu, Tao. Wu</i>	
A Physics-Based Neural Network (PNN) Approach to Solving the Heterogeneous Nonlinear Fullwave Equation.....	1126
<i>You Leo Li, Gianmarco Pinton</i>	
PPM-EMAT Design Configurations for Ultrasonic Communication Through Metallic Channel	1130
<i>Xin Huang, Jafar Saniie</i>	
Oxidation of Sputtered AlScN Films Exposed to the Atmosphere.....	1133
<i>Minghua Li, Kan Hu, Huamao Lin, Valery Felmetzger, Yao Zhu</i>	
Low-Cost, Underwater, Ultrasonic Phased Array Research Platform.....	1136
<i>Tejus Rao, Alec Verduyse, Rhea Zaverchand, Matthew Spencer</i>	
Reinforcement Learning Based Neural Architecture Search for Flaw Detection in Intelligent Ultrasonic Imaging NDE System	1140
<i>Xin Zhang, Jafar Saniie</i>	
Trapping of Microbead Spheroids by pMUTs in Microfluidic Channels Embedded with an Acoustic Reflector.....	1144
<i>Yul Koh, Duan Jian Goh, David Sze Wai Choong, Weiguo Chen, Daniel Ssu-Han Chen, Eldwin J. Ng, Joshua En-Yuan Lee</i>	
A Study of Bonding Materials for GHz Ultrasonic Wavefront Computing	1148
<i>Daniel Ssu-Han Chen, Mantalena Sarafianou, Eva Leong Ching Wai, Jaibir Sharma, Amit Lal, Kevin Tshun Chuan Chai</i>	
Low-Power Full-Duplex Transmit-Receive Circuits for Wearable Ultrasound Transducers.....	1152
<i>Abhishek Sahoo, Steven Zhou, Collin Smith, Emad S. Ebbini</i>	
Inspection of Multilayered Electronic Devices Via Scanning Acoustic Microscopy Using Synthetic Aperture Focusing Technique	1156
<i>Mario Wolf, Peter Hoffrogge, Elfgard Kühnicke, Peter Czurratis, Christian Kupsch</i>	
Ultrasound Communication Through Thin Plates: Understanding and Estimating the Channel.....	1160
<i>Asra Ashraf, Johan E. Carlson, Björn Hagström, Jaap Van De Beek</i>	
Surgical Navigation System for Spinal Surgery with Photoacoustic Endoscopy	1164
<i>Luyao Zhu, Yuting Shen, Yongjian Zhao, Peng Ge, Li Liu, Fei Gao</i>	

Identification of Delamination in Composite Structure by Local Defect Resonance Technique	1167
<i>Changyu Zhang, Weibin Li, Mingxi Deng</i>	
Relationship Between Dynamics of Bubbles Phagocytosed by Dendritic Cells and Intracellular Ca ²⁺ Concentration Change Under Exposure to Pulsed Ultrasound.....	1170
<i>Naoyuki Otake, Ryo Suzuki, Daiki Omata, Nobuki Kudo</i>	
Unipolar Back-Projection Algorithm for Photoacoustic Tomography	1173
<i>Soheil Hakakzadeh, Seyed Masood Mostafavi, Zahra Kavehvasht</i>	
3D Shear Wave Absolute Vibro-Elastography System for Targeted Prostate Biopsy: Initial Results	1177
<i>Tajwar Abrar Aleef, Qi Zeng, Hamid Moradi, Shahed Mohammed, Tom Carrant, Mohammad Honarvar, Robert Rohling, S. Sara Mahdavi, Septimiu E. Salcudean</i>	
3D Reconstruction from Outdoor Ultrasonic Image Using Variation Autoencoder.....	1182
<i>Ryotaro Ohara, Yuto Yasuda, Riku Hamabe, Ishii Toru, Shintaro Izumi, Hiroshi Kawaguchi</i>	
Time-Efficient Low Power Time/Phase-Reversal Beamforming for the Tracking of Ultrasound Implantable Devices	1187
<i>Marta Saccher, Sai Sandeep Lolla, Shinnosuke Kawasaki, Ronald Dekker</i>	
Feasibility of Attenuation Coefficient and Envelope Signal-To-Noise Ratio Estimation for Tissue Characterization of Liver Steatosis.....	1191
<i>José Timaná, Hector Chahuara, Lokesh Basavaraiappa, Adrian Basarab, Kenneth Hoyt, Roberto Lavarello</i>	
Fusion of Multi-Frequency Ultrasound Imaging Based on Wavelet Transform for Guided Screw Insertion.....	1195
<i>Xiangxin Li, Yang Jiao, Yiwen Xu, Ninghao Wang, Yaoyao Cui, Weiwei Shao</i>	
Local Measurement of Instantaneous Change in Myocardial Thickness in Swine Heart During Acute Myocardial Ischemia.....	1199
<i>Yu Obara, Shohei Mori, Masumi Iwai-Takano, Mototaka Arakawa, Susumu Morosawa, Tomohiko Shindo, Hiroaki Yamamoto, Satoshi Yasuda, Hiroaki Shimokawa, Hiroshi Kanai</i>	
Virtual Fields Based-Method for Reconstructing the Elastic Modulus in Quasi-Static Ultrasound Elastography	1203
<i>Anne-Lise Duroy, Olivier Basset, Elisabeth Brusseau</i>	
Partially Clamped Boundary Conditions in a Finite Differences CMUT Model.....	1207
<i>Cyril Meynier, Nicolas Sénégond, Dominique Gross</i>	
A Large-Signal Nonlinear Equivalent Circuit Model for CMUTs Operating in Collapse and Non- Collapse Modes	1211
<i>Alessandro S. Savoia, Omid Farhanieh, Bruno Haider</i>	
Zero-Shot Learning for Real-Time Ultrasound Image Enhancement.....	1215
<i>Yuxuan Li, Wenkai Lu, Patrice Monkam</i>	
Investigation into the Acoustic Transparency of Reconstituted Mucus	1219
<i>Mihnea V. Turcanu, Manlio Tassieri, Maya Thanou, Inke Nätthke, Sandy Cochran</i>	
A 4-Channel Fully Integrated Ultrasound Imaging Front-End Transceiver for 1-D PMUT Arrays	1222
<i>Alessandro S. Savoia, Andrea Mazzanti, Stefano Ottaviani, Lara Novaresi, Piero Malcovati, Davide Ugo Ghisu, Edoardo Bonizzoni, Marco Terenzi, Fabio Quaglia</i>	

Detection and Visualization of Internal Defects in Shotcrete Specimens Using SSE Analysis Considering Local Noise for Noncontact Acoustic Inspection.....	1226
<i>Kazuko Sugimoto, Tsuneyoshi Sugimoto</i>	
Extreme Value Analysis of the Impact of the Effective Gap Tolerance on the Acoustic Transmit and Receive Performance of reverse-CMUT Arrays.....	1230
<i>Monica La Mura, Alvise Bagolini, Patrizia Lamberti, Alessandro S. Savoia</i>	
Detachable Ultrasonic Data Communication Through the Metal Plate with NFC Technology	1234
<i>Javad Abbaszadeh, Vladimir Pashchenko, Michael Gebhart, Aleš Travník, Jochen Bardong, Mohssen Moridi</i>	
Modeling, Identification and Operation of Air-Coupled PMUTs in Non-Linear Regime.....	1238
<i>Marco Passoni, Francesca Carminati, Beatrice Rossi, Diego Carrera, Pasqualina Fragneto</i>	
Incorporating Stainless Steel and Titanium Back Masses in Twice Planar Folded Ultrasonic Scalpels for Robotic Surgery	1242
<i>Abdul Hadi Chibli, Margaret Lucas, Anthony Gachagan, Sandy Cochran</i>	
Modelling the Beam Pattern of Piezopolymer Interdigital Transducers (IDT) for Optimizing the Off-Axis Response	1246
<i>Luca Bergamaschi, Andrea Bulletti, Mattia Dimitri, Lorenzo Capineri</i>	
Synthetic Transmit Aperture Imaging Using Orthogonal Coded Sequences with Separate Transmitters-Receivers.....	1248
<i>Frank Nicolet, Ewen Carcreff, Hervé Liebgott, Barbara Nicolas</i>	
Effect of Geometric and Transmit Corrections on Global Speed of Sound Estimation	1252
<i>Hannah Strohm, Vincent Kuhlen, Jürgen Jenne, Matthias Günther, Sven Rothlübbers</i>	
High-Q A0 Mode Plate Wave Resonator on X-Cut LiNbO ₃ Films with Dummy Electrode Arrays.....	1256
<i>Qinwen Xu, Tong Xin, Zhiwei Wen, Yan Liu, Yao Cai, Bo Woon Soon, Wenjuan Liu, Chengliang Sun</i>	
Material Parameter Extraction Method for SC _x Al _{1-x} N Films Using Multiple Linear Regression and Wafer-Level Uniformity Analysis.....	1260
<i>Chen Liu, Ying Zhang, Nan Wang, Yao Zhu</i>	
Investigation of the Beam Pattern of an Integrated 2D CMUT Spiral Array Element	1264
<i>Monica La Mura, Patrizia Lamberti, Alessandro S. Savoia</i>	
Contactless Ultrasound Droplet Manipulation System for Mixing Chemical Reagents.....	1268
<i>Yu-Chun Chu, Shih-Hung Shen, Man-Ching Huang, Chih-Ying Li, Hsiao-Chi Lin, Chih-Hsien Huang</i>	
Investigation of the BAW-Like Coupled Bulk Acoustic Resonators (CBAR) and Method to Further Improve the Coupling Coefficient.....	1272
<i>Chen Liu, Xinghua Wang, Eugene Woo Yi Zhun, Yao Zhu, Nan Wang</i>	
PDMS Composites with Photostable NIR Dyes for B-Mode Ultrasound Imaging	1275
<i>India Lewis Thompson, Sunish Mathews, Edward Zhang, Paul Beard, Adrien Desjardins, Richard Colchester</i>	
Development of Ultrasonic Shrimp Monitoring System Based on Machine Learning Approaches	1280
<i>Fu-Sung Lin, Po-Wei Yang, Chia-Hsi Wu, Jia-Ling Lin, Hsiao-Chi Lin, Man-Ching Huang, Chih-Ying Li, Chih-Hsien Huang</i>	

Exploring Surface Acoustic Wave Transversal Filters on Heterogeneous Substrates for 5G N77 Band	1284
<i>Mijing Sun, Shibin Zhang, Pengcheng Zheng, Liping Zhang, Jinbo Wu, Xin Ou</i>	
3D Localization of Cavitation Bubbles with a two-Array Angular Spectrum Method Implementation.....	1288
<i>Sarah Therre, Marc Fournelle, Steffen Tretbar</i>	
A Novel Euclidian-Weighted Spatio-Temporal Non-Linear Beamforming for Sparse Synthetic Aperture Ultrasound Imaging: Initial Results.....	1292
<i>Anudeep Vayyeti, Arun K. Thittai</i>	
A Novel Two-Element Scanner for High-Frequency Ultrasound Imaging	1295
<i>Anudeep Vayyeti, Arun K. Thittai</i>	
Ultrasound Transmission Through the Back Cavities of Piezoelectric Micromachined Ultrasonic Transducer (PMUT) Arrays.....	1298
<i>Alessandro S. Savoia, Domenico Giusti, Mark Andrew Shaw, Marco Ferrera, Fabio Quaglia</i>	
Echocardiography Segmentation Based on Cross-Modal Data Augmentation Method.....	1302
<i>Songbai Jin, Patrice Monkam, Wenkai Lu</i>	
Investigation of Guided Wave Dispersion Curves of Lithium-Ion Batteries at Different State of Charge Levels.....	1305
<i>Patrick Swaschnig, Philipp Seebacher, Reinhard Klambauer, Mikel Gorostiaga, Alexander Bergmann</i>	
Strain Engineering on Lithium Niobate Crystal Based SAW Resonators Through Ion Implantation.....	1309
<i>Liping Zhang, Shibin Zhang, Hongyan Zhou, Jinbo Wu, Pengcheng Zheng, Hulin Yao, Xin Ou</i>	
Three-Dimensional Vascular Reconstruction and Doppler Flow Measurement Using PMUTs	1313
<i>Jinchang Li, Liang Zhang, Can Yu, Bo Yu, Pengfei Niu, Zhuochen Wang</i>	
Decoupling of Humidity and Temperature Effects with a Single Solidly Mounted Resonator Sensor	1317
<i>José Manuel Carmona-Cejas, Teona Mirea, Ricardo García-Hervás, Manuel Moreno, Mario De Miguel-Ramos, Jimena Olivares, Marta Clement</i>	
MEMS Microphone Array for Airborne Ultrasonic 3D Tracking	1320
<i>Alessandra Fusco, Martin Krueger, Andreas Froemel, Veena George, Christian Brethauer</i>	
Motion Correction Using Deep Learning Neural Networks - Effects of Data Representation.....	1324
<i>Rifkat Zaydullin, Anil A. Bharath, Enrico Grisan, Kirsten Christensen-Jeffries, Wenjia Bai, Meng-Xing Tang</i>	
Deep Unfolding RPCA for High Resolution Flow Estimation.....	1327
<i>Vassili Pustovalov, Duong Hung Pham, Denis Kouame</i>	
WULPUS: A Wearable Ultra Low-Power Ultrasound Probe for Multi-Day Monitoring of Carotid Artery and Muscle Activity	1331
<i>Sebastian Frey, Sergei Vostrikov, Luca Benini, Andrea Cossettini</i>	
Ultrasonic Video Transmission Through Solid Metallic Channel.....	1335
<i>Xin Huang, Jafar Saniie</i>	
Diverging Polymer Lens Design and Fabrication for Row-Column Addressed Transducers	1338
<i>Mélanie Audoin, Borislav Gueorguiev Tomov, Kasper Fløng Pedersen, Jørgen Arendt Jensen, Erik Vilain Thomsen</i>	

Improving Peak Velocity Estimation Accuracy in EchoPIV Using Anisotropic Windows	1342
<i>Y. Han, P. Segers, J. G. Bosch, J. Voorneveld</i>	
Contactless Positioning of Objects on Acoustically Reflective Surfaces by Means of Ultrasonic Forces	1346
<i>Marc Röthlisberger, Timo Wilhelm, Marcel Schuck, Johann W. Kolar</i>	
An Automatic Ultrasonic Segmentation Method by Two-Stage Semi-Supervised Learning Strategy.....	1350
<i>Fei Dai, Yifang Li, Gaobo Zhang, Qinzhen Shi, Wenyu Xing, Xin Liu, Dean Ta</i>	
Passive Temperature Compensation of Piezoelectric Micromachined Ultrasonic Transducers (PMUTs).....	1354
<i>Cyrl Baby Karuthedath, Abhilash Thanniyil Sebastian, Teuvo Sillanpää, Tuomas Pensala</i>	
Parameter Extraction of Thin-Film Scandium-Doped Aluminum Nitride in Piezoelectric Over Silicon-On-Nothing Platform	1358
<i>Sagnik Ghosh, Prakasha Ramegowda, Eldwin Ng, Zishan Ali, Duan Jian Goh, Jaibir Sharma, Han Xuan Wong, Joshua Lee</i>	
Insonification Angle-Based Ultrasound Volume Reconstruction for Spine Intervention.....	1362
<i>Baichuan Jiang, Keshuai Xu, Abhay Moghekar, Peter Kazanzides, Emad M. Boctor</i>	
Mixture of Intact RBC and Free Hemoglobin Under a Low Cost, Low Power Photoacoustic System with Application in Hemolysis	1366
<i>Soumyodeep Banerjee, Sandip Sarkar, Shaibal Saha, Subhajt Karmakar</i>	
Evaluation of Lateral and Axial Resolution of Pixel-Based Beamformers in Photoacoustic Tomography Using a Linear US Probe	1370
<i>Irene Pi-Martín, Alejandro Cebrecos, Juan J. García-Garrigós, Noé Jiménez, Francisco Camarena</i>	
Exploiting Temporal Information in Echocardiography for Improved Image Segmentation.....	1374
<i>Jieyu Hu, Erik Smistad, Ivar Mjåland Salte, Håvard Dalen, Lasse Lovstakken</i>	
Ultrasound Transducer Optimization for Wireless Battery Charging in Subcutaneous Implantable Device.....	1378
<i>Thien Hoang, Bogdan Rosinski, Nicolas Felix</i>	
Enhanced Wiener and Kuan Filters Applied with Adaptive Beamformers for Improved Contrast and Resolution in Ultrafast Ultrasound Images	1381
<i>Larissa Comar Neves, Felipe Meira Ribas, Joaquim Miguel Maia, Acácio José Zimbico, Amauri Amorin Assef, Eduardo Tavares Costa</i>	
High-Quality Single-Crystal Piezoelectric Aluminum Nitride Grown on Gallium Nitride Transition Layer on Sapphire Substrate.....	1385
<i>Binghui Lin, Yan Liu, Qinwen Xu, Xin Tong, Laixia Nian, Wenjuan Liu, Bo Woon Soon, Yao Cai, Chengliang Sun</i>	
Coded Excitation with Unfocused Plane Waves for 3D Imaging Using a 2D Row Column Addressed Array	1389
<i>Nizar Guezzi, Hyojin Seong, Jaesok Yu</i>	
3D Functional Ultrasound Using a Continuously Moving Linear Stage.....	1392
<i>Bastian Generowicz, Stephanie Dijkhuizen, Chris De Zeeuw, Sebastiaan Koekkoek, Pieter Kruizinga</i>	

Ultrasonic Measurement of Orthotropic Elastic Constants of 3D-Printed Photopolymer Materials	1395
<i>Josep Rodríguez-Sendra, Alicia Carrión, Francisco Camarena</i>	
The “PICUS” System in the Detection of Defects on Panel Paintings and Wooden Boards.....	1398
<i>Giosuè Caliano, Francesca Mariani, Fabiola Vitali, Paola Pogliani</i>	
Automating Regularization Parameter Selection of the Inverse Problem in Ultrasound Tomography	1402
<i>Anita Carevic, Ivan Slapnicar, Mohamed Almekkawy</i>	
Global Speed-Of-Sound Prediction Using Transmission Geometry	1406
<i>Can Deniz Bezek, Mert Bilgin, Lin Zhang, Orcun Goksel</i>	
Experimental and Theoretical Investigations of Enhanced Electromechanical Properties in YbAlN and YbGaN Films.....	1410
<i>Song Li, Junjun Jia, Naoya Iwata, Takahiko Yanagitani</i>	
Quantifying the Role of Transport by Acoustic Streaming in MHz Focused-Ultrasound-Based Surface Sampling	1414
<i>Tom Sillanpää, Joni Mäkinen, Axi Holmström, Topi Pudas, Jere Hyvönen, Petri Lassila, Antti Kuronen, Tapio Kotiaho, Ari Salmi, Edward Hæggström</i>	
RxNet: Learning for Receive Element Reduction in Synthetic Transmit Aperture Imaging	1418
<i>Yinran Chen, Jianwen Luo, Xiongbiao Luo</i>	
Ultrafast Power Doppler Imaging of Human Newborn with Periventricular Venous Infarction: A Pilot Study	1422
<i>Lijie Huang, Yunfeng Liu, Xingyue Wei, Xinlin Hou, Qiong He, Xiaomei Tong, Jianwen Luo</i>	
An Autonomous Electronics System for Ultrasound Energy Transfer and Passive Communication.....	1426
<i>Marc Fournelle, Amen Fadel, Franz-Josef Becker, Manfred Moses, Marc Schmieger, Steffen Tretbar</i>	
Effect of Tapered Angle on BAW Transducer Performance for Ultrasonic Wavefront Computing.....	1430
<i>Zaifeng Yang, Xing Haw Marvin Tan, Viet Phuong Bui, Daniel Ssu-Han Chen, Kevin Tshun- Chuan Chai, Ching Eng Png, Amit Lal</i>	
Towards Multi-Probe High Frame Rate Volumetric Vector Doppler Imaging: A Feasibility Study	1433
<i>Daniele Mazierli, Laura Peralta, Joseph V Hajnal, Alessandro Ramalli, Piero Tortoli</i>	
The Effect of Retrospective Transmit Focusing on Minimum Variance Beamforming.....	1437
<i>Håvard Kjellmo Arnestad, Andreas Austeng, Sven Peter Näsholm, Ole Marius Hoel Rindal</i>	
Deep Meta-Learning for the Selection of Accurate Ultrasound Based Breast Mass Classifier	1441
<i>Michal Byra, Piotr Karwat, Ivan Ryzhankow, Piotr Komorowski, Ziemowit Klimonda, Lukasz Fura, Anna Pawlowska, Norbert Zolek, Jerzy Litniewski</i>	
Inverted Pulse Estimation in Pulse Inversion Harmonic Imaging Using Deep Learning.....	1445
<i>Mariam Fouad, Georg Schmitz</i>	
Vessel Navigation for Single Beam Ultrasound Doppler Using Transparent Transducer and Optics.....	1449
<i>Hwanseung Yu, Keunhyung Lee, Taewon Choi, Minseok Koo, Jinhyoung Park</i>	
Investigation of Machine Learning-Based Acoustic 2D Gas Pyrometer	1452
<i>Fu-Sung Lin, Man-Ching Huang, Chia-Hsi Wu, Jia-Ling Lin, Chih-Ying Li, Hsiao-Chi Lin, Soma Pal, Chih-Hsien Huang</i>	

Toward Whole-Brain Minimally-Invasive Vascular Imaging	1455
<i>Anatole Jimenez, Bruno Osmanski, Denis Vivien, Mickael Tanter, Thomas Gaberel, Thomas Deffieux</i>	
Effects of Tracking Beam Dimensions on Harmonic Motion Imaging (HMI) with Electronic Beam Steering of Focused Ultrasound (FUS).....	1459
<i>Yangpei Liu, Niloufar Saharkhiz, Murad Hossain, Elisa E. Konofagou</i>	
Cannula Localization Using Separate Plane Wave Ultrasound Measurements and a Deep Neural Network.....	1463
<i>Mariam Fouad, Stefanie Dencks, Georg Schmitz</i>	
Calibration of Air-Coupled Ultrasonic Phased Arrays. Is it Worth It?.....	1467
<i>Gianni Allevato, Tobias Frey, Christoph Haugwitz, Matthias Rutsch, Jan Hinrichs, Raphael Müller, Marius Pesavento, Mario Kupnik</i>	
Optimization of Edge Profile for Improved Anti-Resonance Quality Factor in Lithium Niobate SH0 Resonators	1471
<i>Silvan Stettler, Luis Guillermo Villanueva</i>	
Semi-Automatic Segmentation of the Myocardium in High-Frame Rate and Clinical Contrast Echocardiography Images	1475
<i>Stephanie Sze, Oscar Bates, Matthieu Toulemonde, Meng-Xing Tang, Gabriel Bioh, Roxy Senior</i>	
Modulation of Somatosensory Evoked Potentials Via Focused Ultrasound Median Nerve Stimulation	1479
<i>Erica P. McCune, Hermes A. S. Kamimura, Ethan V. Bendau, Stephen A. Lee, Elisa E. Konofagou</i>	
Dual-Axis MEMS Micro-Mirror Based on Lithium Niobate Thin-Film.....	1483
<i>Yaoqing Lu, Kangfu Liu, Tao Wu</i>	
Lamb Wave Reflection and Transmission in Bent Steel Sheets at Low Frequency	1487
<i>Christoph Haugwitz, Jan Hinrichs, Matthias Rutsch, Gianni Allevato, Jan Helge Dörsam, Mario Kupnik</i>	
Reconstructing Human Cerebral Vasculature in 3D with High Frame Rate, Freehand 2D Doppler Ultrasound Using Optical Tracking.....	1491
<i>Luuk Verhoef, Sadaf Soloukey, Frits Mastik, Bastian S. Generowicz, Arnaud J. P. E. Vincent, Eelke M. Bos, Joost W. Schouten, Clemens M. F. Dirven, Chris I. De Zeeuw, Sebastiaan K. E. Koekkoek, Stefan Klein, Pieter Kruizinga</i>	
Ultrasound Image Beamforming Optimization Using a Generative Adversarial Network	1495
<i>Silvia Seoni, Massimo Salvi, Giulia Matrone, Kristen M. Meiburger</i>	
A Procedure to Correct for Anomalies in Estimating the Time Averaged Stored Energy of a BAW Resonator from Its S11 Parameters	1499
<i>Renfeng Jin, Zongliang Cao, Yanbo He, Boyang Jiang, David Feld</i>	
The Dependence of Mechanical Properties of the Electrode Material on the Effective Coupling Coefficients of SAW Resonators on Heterogeneous Substrate	1504
<i>Xiaoli Fang, Shibin Zhang, Hongyan Zhou, Pengcheng Zheng, Jinbo Wu, Liping Zhang, Hulin Yao, Xin Ou</i>	

Simulation of Lamb Waves Excited by an Air-Coupled Ultrasonic Phased Array for Non-Destructive Testing.....	1508
<i>Jan Hinrichs, Christoph Haugwitz, Matthias Rutsch, Gianni Allevalo, Jan Helge Dörsam, Mario Kupnik</i>	
Synthesis Approach to Ladder-DMS Mixed Structures	1512
<i>Lluís Acosta, Eloi Guerrero, Carlos Caballero, Jordi Verdú, Pedro De Paco</i>	
Ultra-Low-Voltage High-Efficiency CMUTs with Piston-Structured Plates for Fill Level Sensing	1516
<i>Fabian Merbeler, Sonja Wismath, Marco Haubold, Christian Bretthauer, Mario Kupnik</i>	
Large Matrix Array Aperture for 3D Vascular Imaging Capture	1520
<i>Quorentin Colas, Claire Bantignies, Marie Perroteau, Nicolas Porcher, Steeven Vassal, Benjamin Guerif, Taehoon Kim, Johan G. Bosch, Nico De Jong, Martin D. Verweij, Michiel A. P. Pertijs, Guillaume Ferin, Martin Flesch</i>	
Towards Attenuation Imaging with Computed Ultrasound Tomography in Echo Mode (CUTE).....	1524
<i>Naiara Korta Martiartu, Parisa Salemi Yolgunlu, Patrick Stähli, Martin Frenz, Michael Jaeger</i>	
A Compact Acoustic Waveguide for Air-Coupled Ultrasonic Phased Arrays at 40 kHz.....	1528
<i>Matthias Rutsch, Gianni Allevalo, Jan Hinrichs, Christoph Haugwitz, Regine Augenstein, Thomas Kaindl, Mario Kupnik</i>	
Grating Lobe Suppression Through Novel, Sparse Laser Induced Phased Array Design.....	1532
<i>Peter Lukacs, Geo Davis, Don Pieris, Anthony Gachagan, Theodosia Stratoudaki</i>	
Multi-Task Learning Framework for Echocardiography Segmentation.....	1536
<i>Patrice Monkam, Songbai Jin, Wenkai Lu</i>	
BB p-DAS, an Extension of p-DAS to Baseband Domain for Doppler Imaging	1539
<i>Pierre Ecarlat, François Varray, Damien Garcia, Ewen Carcreff, Hervé Liebgott, Barbara Nicolas</i>	
Dielectric, Mechanical and Acoustic Characterization of Multi-Modal Tissue-Mimicking Breast Phantoms	1543
<i>Alessia Cannatà, Marco Pasian, Simona Di Meo, Giulia Matrone, Simone Morganti</i>	
Rotation Characteristics of Acoustically Actuated Thin-Film Rotors in Air and Water	1547
<i>Shichao Jia, Yohei Sato, Roderick Y. H. Lim, Soichiro Tsujino</i>	
Long-Distance SAW Sensor Interrogation.....	1549
<i>Dave. W. Greve, Jaaannath Devkota, Richard Pingree, Ruishu Wright</i>	
Confocal Ultrasound Doppler for Investigating Neurovascular Responses to Ultrasound Deep Brain Stimulations.....	1552
<i>Taehyung Kim, Kuenhyung Lee, Hwanseung Yu, Jinhyoung Park</i>	
Maximization of Transmitted Acoustic Intensity from Silicon Integrated Piezoelectric Ultrasound Transducers	1556
<i>Gandhika K. Wardhana, Massimo Mastrangeli, Tiago L. Costa</i>	
Adaptive Diagonal Reducing and Adaptive Weighting Approach to Covariance Matrix-Based Statistical Beamforming for Ultrasound Imaging.....	1560
<i>Yuanguo Wang, Yadan Wang, Jingwen Pan, Chichao Zheng, Hu Peng</i>	

Alias-Free Color Doppler with Chirps	1564
<i>Pierre Ecarlat, Vincent Perrot, Ewen Carcreff, Barbara Nicolas, Hervé Liebgott, Damien Garcia</i>	
Specific Delay Multiply and Sum Beamforming for 2-D and 3-D Coherent Multi-Transducer Ultrasound Imaging	1568
<i>Laura Peralta, Daniele Mazierli, Joseph V Hajnal, Piero Tortoli, Alessandro Ramalli</i>	
A Machine Learning Approach to Cancer Detection and Localization Using Super Resolution Ultrasound Imaging	1571
<i>Georgios Papageorgiou, Mairead Butler, Andrew Mobberley, Weiping Lu, Julian Keanie, Daniel Good, Kevin Gallagher, Alan McNeill, Vassilis Sboros</i>	
Optimization of Thin Film Protection for Waveguided Ultrasonic Phased Arrays	1575
<i>Matthias Rutsch, Omar Ben Dali, Percy Downing, Gianni Allevalo, Christoph Haugwitz, Jan Hinrichs, Mario Kupnik</i>	
Pipeline Structural Health Monitoring Using Frequency Steerable Acoustic Transducers	1579
<i>Masoud Mohammadgholiha, Luca De Marchi</i>	
Classification of Cortical Bone Thicknesses Based on RF Signal Spectral Analysis.....	1583
<i>Hossam H. Sultan, Enrico Grisan, Laura Peralta, Sevan Harput</i>	
Simulation of Acoustic Losses in Waveguides for Air-Coupled Ultrasonic Phased Arrays	1587
<i>Matthias Rutsch, Leon Schultz-Fademrecht, Gianni Allevalo, Christoph Haugwitz, Jan Hinrichs, Mario Kupnik</i>	
Accurate Radiation Impedance Analysis for CMUT Design	1591
<i>Stine Løvholt Grue Pedersen, Andreas Spandet Havreland, Ole Hansen, Erik Vilain Thomsen</i>	
Superharmonic Imaging with Plane Wave Beamforming Techniques.....	1595
<i>Jing Yang, Emmanuel Chérin, Jianhua Yin, Paul A. Dayton, F. Stuart Foster, Christine E. M. Démoré</i>	
Damage Identification Via Laplacian Filtering of Full Wavefield Acquisitions.....	1599
<i>Michelangelo Malatesta, Luca De Marchi</i>	
Identification of Critical Angles in Shear Mode Conversion-Based Transcranial Ultrasound Via Leaky Guided Wave Analysis	1603
<i>Matteo Mazzotti, Eetu Kohtanen, Alper Erturk, Massimo Ruzzene</i>	
Combined B-Mode and Nakagami Images for Improved Discrimination of Breast Masses Using Deep Learning	1607
<i>Sabiq Muhtadi, Syed Tousiful Haque, Caterina M. Gallippi</i>	
Feasibility of Using Low-Energy Pulsed Laser Diode on Clinical Ultrasound Platforms for Photoacoustic and Transrectal Ultrasound Guided Laparoscopic Prostatectomy.....	1611
<i>Yixuan Wu, Baichuan Jiang, Hyunwoo Song, Keshuai Xu, Hamid Moradi, Emad M. Boctor</i>	
Quantitative Viscoelastic Response (QVisR) Domain Adaption with Fine Tuning.....	1615
<i>Joseph B. Richardson, Caterina M. Gallippi</i>	
SoundAI: Improved Imaging with Learned Sound Speed Maps	1618
<i>James R. Young, Scott Schoen, Viksit Kumar, Kai Thomenius, Anthony E. Samir</i>	

Analyzing the 2nd Harmonic Emissions of a BAW Resonator Undergoing Lateral Mode Excitation	1622
<i>David Molinero, Renfeng Jin, Xiangnan Pang, Yanbo He, Yiliu Wang, Zongliang Cao, David Feld</i>	
Estimation of Cortical Bone Strength Using CNN-Based Regression Model.....	1627
<i>Hossam H. Sultan, Enrico Grisan, Laura Peralta, Sevan Harput</i>	
Screening and Image-Guided Targeted Biopsy of Prostate Cancer Using 3D Acoustic Radiation Force Impulse (ARFI) Imaging.....	1631
<i>Derek Y. Chan, Spencer R. Moavenzadeh, Thomas J. Polascik, Mark L. Palmeri, Kathryn R. Nightingale</i>	
Adaptive Spatial Smoothing-Based Minimum Variance Beamforming Using Signal Coherence to Improve Image Quality.....	1635
<i>Jingwen Pan, Yuanguo Wang, Yadan Wang, Zhihui Han, Chichao Zheng, Hu Peng</i>	
Myocardial Elastography for Evaluating the Evolution of Strains and Strain Rates in Canine Myocardium After Myocardial Infarction.....	1639
<i>Yik Tung Tracy Ling, Vincent Sayseng, Elisa Konofagou</i>	
Experimental Study on Bone Phantom Imaging Using Ultrasound Velocity Inversion and Reverse Time Migration.....	1643
<i>Ying Li, Yi Lin, Boyi Li, Chengcheng Liu, Dan Li, Yi Wu, Dean Ta, Weiqi Wang</i>	
Cervix Ultrasound Texture Analysis to Differentiate Between Term and Preterm Birth Pregnancy: A Machine Learning Approach.....	1647
<i>David Bustamante, Yan Yan, Maryam Basij, Azin Gelareh, Edgar Hernandez-Andrade, Seyedmohammad Shams, Mohammad Mehrmohammadi</i>	
Robust Localized Stiffness Assessment by Combining Flow and Wall Motion Using a 1-D Wave Propagation Model	1651
<i>Paul Kemper, Nima Mobadersany, Elisa E. Konofagou</i>	
Influence of 3D Printing Parameters on Acoustic Properties of Metamaterials	1655
<i>Mahdi Derayatifar, Mohsen Habibi, Rama B. Bhat, Muthukumaran Packirisamy</i>	
Sub-100nm Al _{0.7} Sc _{0.3} N Thin Films for Next Generation Bulk Acoustic Wave Resonators and Filters.....	1658
<i>Chen Liu, Minghua Li, Nan Wang, Yao Zhu</i>	
A Dual-Core Ultrasound Probe for Image-Guided Sonoporation: Application to Anti-Cancer Immunotherapy	1661
<i>Mathieu Legros, Rémi Rouffaud, Laurent Colin, Dominique Gross, Dominique Certon, Jean-Michel Escoffre</i>	
Numerical Spatial Impulse Response Evaluations of Lossy Media	1665
<i>Drew A. Murray, Robert J. McGough</i>	
New Shear Horizontal (SH) Surface Acoustic Waves Propagating at the Interface Between Two Elastic Half-Spaces.....	1669
<i>Piotr Kielczynski</i>	
A Time-Domain Fractional Calculus Model for Shear Wave Parameter Estimation.....	1673
<i>Robert J. McGough, Matthew W. Urban</i>	
Nonlinear Least-Squares Estimation of Shear Wave Speeds in Viscoelastic Media.....	1676
<i>Nicholas A. Bannon, Matthew W. Urban, Robert J. McGough</i>	

Next Generation of BAW: The New Benchmark for RF Acoustic Technologies	1680
<i>Andreas Tag, Michael Schaefer, Jyothi Sadhu, Alireza Tajic, Paul Stokes, Milad Koochi, Waleed Yusuf, Wolfgang Heeren, Hedy Fatemi, Francis Celii, Jaime Trujillo, Cho Chanseob, Yanghua He, Eliot Silbar, Erika Fuentes, Thomas Berer, Mudar Aljoumayly, Ralph Rothemund</i>	
Photoacoustic Imaging of a Pre-Clinical Tumour Model with an ExactVu Micro-Ultrasound System	1684
<i>Nidhi Singh, Emmanuel Cherin, Yohannes Soenjaya, Ayushi Patel, Carlos-Felipe Roa, Gang Zheng, F. Stuart Foster, Christine E. M. Demore</i>	
A Disentanglement and Fusion Data Augmentation Approach for Echocardiography Segmentation	1688
<i>Patrice Monkam, Songbai Jin, Bo Tang, Xiang Zhou, Wenkai Lu</i>	
On the Correlation Between Knee Flexion and 3D Shear Wave Speed and Amplitude in in Vivo Vastus Lateralis	1692
<i>Courtney Trutna Paley, Anna E. Knight, Felix Q. Jin, Spencer Moavenzadeh, Ned C. Rouze, Laura S. Pietrosimone, Mark L. Palmeri, Kathryn R. Nightingale</i>	
Elastic Metasurface Made of Elliptic Shape Pillars for Acoustic Wave Focusing	1696
<i>Bahram Djafari-Rouhani, Laurent Carpentier, Yan Pennec</i>	
Examination of Phonon Dissipation in 33 GHz Overmoded Bulk Acoustic Resonators	1699
<i>Zachary Schaffer, Ahmed Hassaniy, Gianluca Piazza</i>	
Ultrasound Wrist Vein Pattern for Biometric Recognition.....	1703
<i>Monica Micucci, Antonio Iula</i>	
A High-Performance 3D Imaging Technique Using Simultaneous Azimuth and Elevation Compounding.....	1707
<i>Nicholas A. Campbell, Nicole. Macmullin, Rachel. Kiefl, Eptehal. Nashnoush, Katherine. Latham, Charles Emery, Jeremy A. Brown</i>	
3-D Contrast Enhanced Ultrasound Imaging of an in Vivo Chicken Embryo with a Sparse Array and Deep Learning Based Adaptive Beamforming	1711
<i>Boudewine W. Ossenkoppele, Luxi Wei, Ben Luijten, Hendrik J. Vos, Nico De Jong, Ruud J. G. Van Sloun, Martin D. Verweij</i>	
Towards Integrated Microultrasound Systems	1715
<i>Bartas Abaravicius, Alexandru Moldovan, Srinjoy Mitra, Sandy Cochran</i>	
Fast Modeling of Lateral Modes in BAW Resonators with Arbitrary In-Plane Geometry	1719
<i>Carlos Udaondo, Carlos Collado, Jordi Mateu</i>	
Adaptive Photoacoustic Beamforming Algorithms for Blood Oxygen Saturation Estimation.....	1723
<i>Rashid Al Mukaddim, Tomy Varghese</i>	
Y-36 Lithium Niobate Films Support f-Q of $5.5 \cdot 10^{13}$ Hz in the 1-10 GHz Range.....	1727
<i>Zachary Schaffer, Gianluca Piazza</i>	
Steel Material Microstructure Characterization Using Knowledge Distillation Based Transformer Neural Networks for Data-Efficient Ultrasonic NDE System	1731
<i>Xin Zhang, Jafar Saniie</i>	

Changes in Quantitative Ultrasound Imaging as the Predictor of Response to Neoadjuvant Chemotherapy in Patients with Breast Cancer	1735
<i>Hanna Piotrkowska-Wróblewska, Katarzyna Dobruch-Sobczak, Magdalena Gumowska, Jerzy Litniewski</i>	
Evaluation of Piezoelectric Ceramics for Use in Miniature Histotripsy Transducers	1739
<i>Matthew Mallay, Justin Greige, Thomas Landry, Colton Campbell, Jeffrey Woodacre, Mahmoud Ibrahim, Jeremy Brown</i>	
In Vivo Estimation of Murine Myocardial Oxygenation with Physiological Signal Gating and Motion Compensation	1743
<i>Rashid Al Mukaddim, Ashley M. Weichmann, Carol C. Mitchell, Andrew Heinmiller, Tomy Varghese</i>	
An Efficient Electrode Optimization Method for Multi-Frequency PMUTs.....	1746
<i>Amirfereydoon Mansoori, Lars Hoff, Hamed Salmani, Einar Halvorsen</i>	
Impact of Skin Pigmentation on Photoacoustic Imaging Using Linear Array Transducer: A Pilot in Vivo Study.....	1750
<i>Guilherme S. Pilotto Fernandes, Joao H. Uliana, Luciano Bachmann, Antonio A. O Carneiro, Muyinatu A. Lediju Bell, Theo Z. Pavan</i>	
Ultrasonic Fluid Velocity Estimation System with Self-Optimised Switched Mode Transmit Schemes.....	1754
<i>Harry R. Clegg, Javad Rostami, Wes Maru, Thomas M. Carpenter, Steven Freear, David M. J. Cowell</i>	
IBAD C-Axis Parallel ZnO Piezoelectric Film Stack for Gyroscope Applications	1758
<i>Shinya Kudo, Kohei Ekida, Junjun Jia, Takahiko Yanagitani</i>	
Machine Learning and Modeling of Ultrasonic Signals for High-Fidelity Data Compression	1762
<i>Jafar Saniie, Pramod Govindan, Boyang Wang, Xin Zhang, Yufeng Lu, Erdal Oruklu</i>	
Multimodal Exponentially Modified Gaussian Oscillators	1771
<i>Christopher Hahne</i>	
Enhanced Motion Estimation by Training a Deep Learning Optical Flow Algorithm on a Hybrid Dataset.....	1775
<i>Andrea Pulido, Nitin Burman, Claudia Manetti, Sandro Queirós, Jan D'Hooge</i>	
Growth of O-Polar and Zn-Polar Ferroelectric MgZnO Thin Films Controlled by Sputtering Geometry.....	1779
<i>Yohkoh Shimano, Shinji Takayanagi, Takahiko Yanagitani</i>	
Numerical Investigation of Multiple Scattering and Mode-Converted Shear Waves Caused by Temporal Bone in Transcranial Photoacoustic Imaging.....	1783
<i>Fatemeh Hosseini, Moein Mozaffarzadeh, Ali Mahloojifar, Martin D. Verweij, Nico De Jong</i>	
Multiparametric Microvascular Ultrasound to Classify Tumor Sensitivity to Anti-Angiogenic Treatment: Application to Multiple Cell Lines.....	1787
<i>Mahsa Bataghva, Danielle Johnston, Nicholas Power, Aaron Ward, Silvia Penuela, James C. Lacefield</i>	
Focused Ultrasound-Induced Blood-Brain Barrier Opening Delays the Onset of Alzheimer's Disease-Associated Pathology in Male and Female 3xTg Mice.....	1791
<i>Rebecca L. Noel, Alec J. Batts, Elisa E. Konofagou</i>	

Quasi-Shear Mode Electromechanical Coupling Coefficient of c-Axis Tilted MgZnO Thin Films	1795
<i>Yohkoh Shimano, Hiroki Kishi, Shinya Kudo, Takahiko Yanagitani</i>	
In Vivo VisR Measurements of Viscoelasticity and Viscoelastic Anisotropy in Human Allografted Kidneys Differentiate Interstitial Fibrosis and Graft Rejection.....	1799
<i>Keita A. Yokoyama, Md. Murad Hossain, Melissa C. Caughey, Melrose W. Fisher, Randal K. Detweiler, Emily H. Chang, Caterina M. Gallippi</i>	
MRI Guided Transcranial Acoustoelectric Imaging for Safe and Accurate Electrical Brain Mapping.....	1803
<i>Margaret Allard, Chet Preston, Teo Trujillo, Chiao Huang, Nan-Kuei Chen, Russell S. Witte</i>	
Laser Diode Beam Shaping and Homogenization with a Multimode Fiber Applied to Optical Resolution Photoacoustic Microscopy Based on Linear Phased Array Ultrasound Probe	1807
<i>Juan J. García-Garrigós, Alejandro Cebrecos, Javier A. Navarro-Calvo, Noé Jiménez, José María Benlloch, Francisco Camarena</i>	
Attenuation Coefficient Imaging Using Regularization by Denoising	1811
<i>Anthony Carrera, Adrian Basarab, Roberto Lavarello</i>	
Programmable Oscillator Implementation Using 2.5 GHz Mirror-Encapsulated BAW Resonator to Achieve ± 20 PPM Overall Stability	1815
<i>Ernest T.-T. Yen, Keegan Martin, Subhashish Mukherjee, Jeronimo Segovia-Fernandez, Kaichien Tsai, Bichoy Bahr, Kashvap Mohan, Pceyoosh Miraiakar, Harish Ramesh, Mahesh Chandrashekaraiyah, Yao Yu, Yogesh Darwhekar, Jagdish Chand, Yf Chek, Ricky Jackson, Xiaolin Lu, Yogesh Ramadass, Xiaofan Qiu</i>	
An Open, Modular, Ultrasound Digital Signal Processing Specification.....	1819
<i>Harry R. Clegg, Thomas M. Carpenter, Steven Freear, David M. J. Cowell</i>	
Characterization of Acoustic Emissions in Subharmonic Frequency Domain for Detection and Monitoring of Therapeutic Microbubble-Mediated Treatments.....	1823
<i>Ishan V. Ramaiah, Paidamoyo J. Ewing, Yuri A. Pishchalnikov, William M. Behnke-Parks</i>	
K-Space Domain Spatial Filtering for Retrospective Transmit Beam Focusing/Shaping and Per-Element Data Estimation from Arrays with Microbeamforming	1826
<i>Junseob Shin, Jean-Luc Robert, Can Meral, Iason Apostolakis, Man Nguyen, Jason Yu</i>	
Monitoring of Radiofrequency Ablation Using Echo Decorrelation Imaging in Ex Vivo Hepatocellular Carcinoma.....	1830
<i>Mohamed A. Abbass, Sherif Hussein, Mohamed Saleh, Mohamed Basyouny, Hussein Elsayed, Ahmed Omar</i>	
Real-Time Lesion Monitoring During FUS Ablation Using Interleaved Harmonic Motion Imaging Guided FUS (Interleaved-HMIgFUS) in in Vivo Mouse and Humans	1834
<i>Xiaoyue J. Li, Niloufar Saharkhiz, Yangpei Liu, Md Murad Hossain, M-Sharjeel Ansari, Bret Taback, Elisa E. Konofagou</i>	
Coupling Fast Superresolution CNN with Fast Plane-Wave Fourier-Domain Beamforming	1838
<i>Farid Anjidani, Daler Rakhmatov</i>	
Shear Horizontal Surface Acoustic Wave FIR Filters in Lithium Niobate on Insulator.....	1843
<i>Jack Guida, Siva Yegnanarayanan, Matthew Ricci, Siddhartha Ghosh</i>	
Breast Lesion Diameter in VisR Imaging Differs Between Malignant and Benign Masses in Women	1847
<i>Anna V. Phillips, Gabriela Torres, Doreen Steed, Melissa C. Caughey, Jasmin Merhout, Shanah R. Kirk, Terry S. Hartman, Cherie M. Kuzmiak, Emily M. Ray, Caterina M. Gallippi</i>	

End-To-End Deep Learning for Tuning-Free Non-Contrast Ultrasound Microvessel Imaging	1850
<i>Ahmed Tahseen Minhaz, Michaela Cooley, Ananya Subramaniam, Agata Exner, Faruk Orge, David Wilson, Mahdi Bayat</i>	
Machine Learning for Liver and Tumor Segmentation in Ultrasound Based on Labeled CT and MRI Images	1853
<i>Laurent Man, Haoyang Wu, Junzheng Man, Xuegong Shi, Haohao Wang, Qiaorong Liang</i>	
Integrated Backscatter Versus Spectral Parameters for in Vivo Estimation of Human Carotid Plaque Composition.....	1857
<i>Sheronica James, Russell Fedewa, Sean Lyden, D. Geoffrey Vince</i>	
Transcranial Acoustoelectric Imaging of Spatially and Temporally Varying Electrical Currents to Better Understand Neuronal Dysfunction	1861
<i>Teodoro Trujillo, Margaret Allard, Alexander Alvarez, Chet Preston, Russell S. Witte</i>	
Predicting Generalized Contrast-To-Noise Ratios in Frame-Averaged Photoacoustic Images.....	1865
<i>Mardava R. Gubbi, Muyinatu A. Lediju Bell</i>	
Row-Multiplexed 1,024 Element Large Aperture Array for Electronic Scanning in Elevation.....	1869
<i>Robert Wodnicki, Hanna Bendjador, Haochen Kang, Josquin Foiret, Christophe Notard, Qifa Zhou, Katherine W. Ferrara</i>	
A Multi-Directional Transducer Array for Muscle Shear Wave Anisotropy Estimation	1873
<i>Huaiyu Wu, Bohua Zhang, Guo-Xuan Xu, Chih-Chung Huang, Xiaoning Jiang</i>	
Matching Layer Deposition for an Open-Source Ultrasound Tomography System: Inter-Element Variation in Frequency Response.....	1877
<i>Morgan Roberts, Eleanor Martin, Michael Brown, Ben Cox, Bradley Treeby</i>	
Distinguishing Fluid and Solid Breast Masses with Fundamental and Harmonic Amplitude- And Coherence-Based Ultrasound Beamforming	1881
<i>Arunima Sharma, Alycen Wiacek, Eniola Oluyemi, Kelly Myers, Emily Ambinder, Muyinatu A. Lediju Bell</i>	
4D Cardiac Gated Vector Flow Imaging Accurately Measures WSS in a Pressurized Closed-Loop System	1885
<i>Keerthi S. Anand, Caterina M. Gallippi</i>	
A Dual-Frequency Intravascular Ultrasound Transducer for Amplified Nanodroplet Vaporization Effects in Cavitation-Enhanced Sonothrombolysis	1888
<i>Sunho Moon, Huaiyu Wu, Bohua Zhang, Jinwook Kim, Paul A. Dayton, Zhen Xu, Xiaoning Jiang</i>	
Acoustical and Optical Compensation for Spectral Unmixing of Sulfates Using Ultrasound and Photoacoustic Tomography: In Silico and in Vitro Results.....	1892
<i>Alexander Pattyn, Karl Kratkiewicz, Mohammad Mehrmohammadi</i>	
Binary and Random Inputs to Rapidly Identify Overfitting of Deep Neural Networks Trained to Output Ultrasound Images.....	1896
<i>Jiaxin Zhang, Alycen Wiacek, Muyinatu A. Lediju Bell</i>	
Intracorporeal Sonoporation-Induced Drug/Gene Delivery Using a Catheter Ultrasound Transducer	1900
<i>Mengyue Chen, Howuk Kim, Bohua Zhang, Waston Yang, Takuya Osada, Erika J. Crosby, H. Kim Lyerly, Xiaoning Jiang</i>	

Concurrent ARFI Plaque Imaging and Wall Shear Stress Measurement in Human Carotid Artery, with Validation by Fluid Structure Interaction Models	1904
<i>Keerthi S. Anand, Ebrahim M. Kolahdouz, Jonathon Homeister, Margaret-Anne Smith, Boyce E. Griffith, Caterina M. Gallippi</i>	
Millisecond-Level Transient Temperature Monitoring Using an Ultra-Fast Response Thermocouple for Ultrasound-Induced Thermal Strain Imaging	1908
<i>Mengyue Chen, Bohua Zhang, Howuk Kim, Zhiyu Sheng, Qiyang Chen, Kang Kim, Xuecang Geng, Xiaoning Jiang</i>	
Direct Speed of Sound Reconstruction from Full-Synthetic Aperture Data with Dual Regularization.....	1912
<i>Sergio J Sanabria, Thurston Brevett, Rehman Ali, Arsenii Telichko, Jeremy Dahl</i>	
Fabrication of High K_r^2 and $K'_{35}{}^2$ $Sc_{0.4}Al_{0.6}N$ Thin Films by RF Magnetron Sputtering	1916
<i>Yuki Shimizu, Takahiko Yanagitani</i>	
Properties of a Fully Printed Ultrasound Transducer on Flexible Substrate.....	1920
<i>Christoph Leitner, Kirill Keller, Stephan Thurner, Francesco Greco, Christian Baumgartner</i>	
Integrated System on a Chip for Guidewire IVUS	1923
<i>Xitie Zhang, Evren F. Arkan, Coskun Tekes, Shaolan Li, F. Levent Degertekin</i>	
A Strategy for Synthetic Aperture Sequence Design Using Numerical Optimization	1927
<i>Jacob Spainhour, Stephen Becker, Nick Bottenus</i>	
Design of a Transimpedance Amplifier for a Dual Mode CMUT Based Transcranial Ultrasound System	1931
<i>Reza Pakdaman Zangabad, M. Sait Kilinc, Xitie Zhang, Costas D. Arvanitis, F. Levent Degertekin</i>	
Quantitative Analysis of Array Dropouts in 3D Ultrasound Tomography/Volography	1935
<i>James Wiskin, John Klock</i>	
Precise Observation, Separation and Synthesis of Shear Waves Using Ultrasonic Vectorial Doppler Measurement and Spatio-Temporal Multidimensional Spectral Processing	1939
<i>Chikayoshi Sumi, Senior Member, Yusuke Kobayashi</i>	
An Open-Source Radon-Transform Shear Wave Speed Estimator with Masking Functionality to Isolate Different Shear-Wave Modes	1944
<i>Felix Q. Jin, Anna E. Knight, Courtney Trutna Paley, Laura S. Pietrosimone, Lisa D. Hobson-Webb, Kathryn R. Nightingale, Mark L. Palmeri</i>	
Displacement-Based Reconstruction of Elasticity Distribution with Deep Neural Network	1948
<i>Xiao Zhang, Rui Wang, Xingyue Wei, Jianwen Luo, Bo Peng</i>	
A Flexible Array Transducer for Photoacoustic-Guided Surgery	1953
<i>Jiaxin Zhang, Alycen Wiacek, Eduardo González, Ziwei Feng, Kai Ding, Muyinatu A. Lediju Bell</i>	
Speed of Sound Imaging with Curvilinear Probes from Full-Synthetic Aperture Data.....	1957
<i>Sergio J Sanabria, Thurston Brevett, Arsenii Telichko, Jeremy Dahl</i>	
Contrast-Enhanced Ultrasound for Assessing Blood Flow Modulation of Hepatocellular Carcinoma by Hydralazine	1961
<i>Laith R Sultan, Maryam Al-Hasani, Mrigendra B Karmacharya, Theodore W Cary, Chandra M Sehgal</i>	

Modeling Shear Wave Propagation in an Incompressible, Transversely Isotropic Material Using Physics-Informed Neural Networks	1965
<i>Felix Q. Jin, Ned C. Rouze, Anna E. Knight, Kathryn R. Nightingale, Mark L. Palmeri</i>	
Visualizing Perfusion Throughout the Cardiac Cycle Using Advanced Power Doppler Acquisition and Filtering Methods.....	1969
<i>Abbie Weeks, Emelina Vienneau, Brett Byram</i>	
Sensitivity Enhanced High Frequency pMUT with 3 rd -Order Flexural Mode Using LN Thin Film.....	1972
<i>Kangfu Liu, Yaoqing Lu, Tao Wu</i>	
Power Durability Evaluation of Higher-Order Mode Polarization-Inverted ScAlN Thin Film Resonators	1976
<i>Saneyuki Shibata, Takahiko Yanagitani</i>	
DeNet: Optimizing of Transmit Delays for High Frame Rate Synthetic Transmit Aperture Imaging	1980
<i>Xinze Lan, Jingke Zhang, Jianwen Luo</i>	
A Theoretical Framework of Pulse Wave Imaging on Plaque Characterization	1984
<i>Cosima Liang, Nima Mobadersany, Elisa E. Konofagou</i>	
A Lithium Niobate MEMS-Coupled Matching Network for BFSK Modulated Signal Amplification in Spectrum Monitoring Applications	1988
<i>Luca Colombo, Eloi Guerrero, Nicolas Casilli, Gabriel Giribaldi, Bernard Herrera-Soukup, Pedro De Paco, Matteo Rinaldi</i>	
A Robust Deep Neural Network Approach for Ultrafast Ultrasound Imaging Using Single Angle Plane Wave.....	1991
<i>Mohammad Wasih, Mohamed Almekkawy</i>	
Gigahertz Metamaterial Ultrasonic Lens Characterization Using GHz CMOS Integrated Ultrasonic Micro Imager	1995
<i>Juneho Hwang, Anuj Baskota, Benyamin Davaji, Justin Kuo, Amit Lal</i>	
Spectral System Denoising in Spectroscopic Photoacoustic Neuroimaging	1999
<i>Jeeun Kang, Yixuan Wu, Ernest M. Graham, Raymond C. Koehler, Emad M. Boctor</i>	
Ultrasound and Photoacoustic Guided Tissue Temperature Mapping During Ablation Therapies.....	2002
<i>Samuel John, Nooshin Maghsoodi, Angad Ghag, Loay Kabbani, Yan Yan, Mohammad Mehrmohammadi</i>	
Cardiac Strain Imaging Artifact Detection and Suppression with Minimum Variance Beamforming and SVD Filtering	2006
<i>Jad El Harake, Paul Kemper, Changhee Lee, Julien Grondin, Julia Han, Andrew Einstein, Elisa E. Konofagou</i>	
Characterization of Temperature Heterogeneity in Utility-Scale Power Plant Boilers by Spatially Distributed Ultrasonic Measurements	2010
<i>Kenneth Walton, Mason John, Mikhail Skliar</i>	
Hyper-Beam Photoacoustic Array Imaging.....	2014
<i>Chun-Hsien Chiang, Meng-Lin Li</i>	
Characterization of Nonlinear Elasticity of the Carotid Artery Using Pulse Wave Imaging: A Feasibility Study in Hypertensive and Carotid Artery Disease Patients in Vivo.....	2017
<i>Parth Gami, Paul Kemper, Grigorios Karageorgos, Timothy Swingle, Rachel Webber, Elisa E. Konofagou</i>	

Experimental and Numerical Study on the Second Order Harmonic (H2) and Third Order Intermodulation Distortion (IMD3) Response of Scandium Aluminum Nitride Based FBAR Devices with Different Scandium Doping Levels	2021
<i>Ying Zhang, Wenjia Yang, Chen Liu, Xinghua Wang, Eugene Woo Yi Zhun, Nan Wang, Yao Zhu</i>	
Adaptive Weighting Strategy in Regularized Quantitative Ultrasound.....	2024
<i>Noushin Jafarpisheh, Laura Castaneda-Martinez, Hayley Whitson, Ivan M. Rosado-Mendez, Hassan Rivaz</i>	
Hilbert-Huang Transform Based Photoacoustic Signal Analysis for Bone Assessment	2027
<i>Jieshu Li, Ting Feng, Weiya Xie, Liming Cheng, Dean Ta, Qian Cheng</i>	
Bimorph Piezoelectric MEMS Microphone with Tractive Structure	2031
<i>Chaoliang Yang, Bohao Hu, Liangyu Lu, Yaxin Wang, Yao Cai, Yan Liu, Wenjuan Liu, Chengliang Sun</i>	
Coded Excitation for Increased Sensitivity in Transcranial Power Doppler Imaging	2035
<i>Emelina Vienneau, Abbie Weeks, Brett Byram</i>	
Quantitative Estimation of Shear Elastic Heterogeneity and Anisotropy in Excised Canine Kidneys Using Double Profile Intersection (DoPIo) Ultrasound.....	2039
<i>Keita A. Yokoyama, Timothy C. Nichols, Caterina M. Gallippi</i>	
Difference-Frequency-Based Ultrasonic Contrast Imaging of Material Elasticities	2043
<i>Dong Hun Kim, Young Seok Kwon, Dong-Hyun Kang, Shinyong Shim, Jun Hong Park, Byung Chul Lee</i>	
Correlation of Wafer-Scale Film Stress Effects on ScAlN pMUT Parameters	2047
<i>D. S. W. Choong, D. J. Goh, J. Liu, S. Merugu, Q. X. Zhang, H. K. Lee, P. Chang, A. Leotti, H.-S. Tan, V. Magbujos, Y. J. Hur, H. Lin, B. S. S. Chadra Rao, S. Ghosh, P. C. Ramegowda, D. S.-H. Chen, D. Giusti, F. Quaglia, E. J. Ng, J. E.-Y. Lee</i>	
Sputtered PZT pMUT with Bias-Tunable Electromechanical Coupling Coefficient for Air-Coupled Ranging Applications	2051
<i>J. Liu, D. S. W. Choong, D. J. Goh, S. Merugu, Q. X. Zhang, P. Chang, A. Leotti, H.-S. Tan, A. Hidayat, S. Ghosh, P. C. Ramegowda, D. S.-H. Chen, D. Giusti, F. Quaglia, C. Pedrini, L. Barabani, L. Castoldi, E. J. Ng, J. E.-Y. Lee</i>	
Giant Pressure Output Efficiency of Capacitive Micromachined Ultrasonic Transducers Using Nano-Silicon-Springs	2055
<i>Hae Youn Kim, Dong-Hyun Kang, Shyinyong Shim, Jung-Mok Seo, Butrus T. Khuri-Yakub, Byung Chul Lee</i>	
A Pre-Charged CMUT Structure with a Built-In Charge Storage Capacitor.....	2059
<i>Muhammetgeldi Annayev, F. Yalcin Yamaner, Ömer Oralkan</i>	
Mixed Imaging Sequences for Improved Spatiotemporal Resolution in Cardiac Imaging	2062
<i>Blake Herrema, Nick Bottenus</i>	
Nematode Species Differentiation Using GHz Ultrasonic Micro Imager	2066
<i>Anuj Baskota, Justin Kuo, Serhan Ardanuç, Amit Lal</i>	

Performance Assessment of Ultra-Wideband and Dual-Mode 1D CMUT Arrays for Acoustic Angiography	2070
<i>Ernek Belekov, Kathlyne J. Bautista, Muhammetgeldi Annayev, Oluwafemi J. Adelegan, Ali O. Biliroglu, Thomas M. Kierski, Jean L. Sanders, Remzi E. Kemal, Erdem Sennik, Feysel Y. Yamaner, Paul A. Dayton, Omer Oralkan</i>	
Left Ventricle Wall Segmentation in Echocardiography Using B-Mode Image and Radio Frequency Signal Jointly	2073
<i>Guil Jung, Young-Min Kim, Myeong-Gee Kim, Seok-Hwan Oh, Hyuk-Sool Kwon, Hyeon-Min Bae</i>	
Blind Phase-Aberrated Baseband Point Spread Function Estimation Using Complex-Valued Convolutional Neural Network	2077
<i>Yu-An Lin, Wei-Hsiang Shen, Meng-Lin Li</i>	
Polarization Inverted Two Layer ScAlN Thin Film Resonator Fabricated by Applying External Electric Field	2081
<i>Naoki Ishii, Takahiko Yanagitani</i>	
Rhombic Grids Reduce the Number of Voxels in Fast Pulse-Echo Ultrasound Imaging.....	2085
<i>Martin F. Schiffner</i>	
3D Ultrasound Tomography Timing Validation for Clinical Deployment.....	2089
<i>James Wiskin, John Klock</i>	
Simulations of Acoustic Wave Propagation in the Breast with Tumors Using a Modified VICTRE Phantom.....	2092
<i>Anna Pawlowska, Norbert Zolek, Jerzy Litniewski</i>	
Design and Fabrication of a P(VDF - TrFE) Based Piezoelectric Micromachined Ultrasonic Transducer with Acoustic Cavity	2096
<i>Alp Timucin Toymus, Mohammad Javad Bathaei, Seckin Akinci, Sedat Pala, Levent Beker</i>	
Improvement of Electromechanical Coupling Coefficient of Piezoelectric LiNbO ₃ by Doping Praseodymium.....	2099
<i>Kae Nakamura, Shinya Kudo, Junjun Jia, Takahiko Yanagitani</i>	
ROI-Free Assessment of In-Vivo Image Quality with Feature Extraction and the Earth Mover's Distance.....	2103
<i>Ying-Chun Pan, Brett Byram, Susan Eagle, Ryan Lefevre</i>	
A Novel Adaptive Imaging Technique Using Point Spread Function Reshaping	2107
<i>Wei-Hsiang Shen, Meng-Lin Li</i>	
Sub-6dB Aluminum Scandium Nitride Acoustic Delay Lines.....	2110
<i>Shuai Shao, Zhifang Luo, Tao Wu</i>	
Speed of Sound Estimation at Multiple Angles from Common Midpoint Gathers of Non-Beamformed Data.....	2113
<i>Thurston Brevett, Sergio J Sanabria, Rehman Ali, Jeremy Dahl</i>	
Laser Scanning for Single-Shot Frequency Diverse Photoacoustic Excitation	2117
<i>William L. Meng, Aidan Fitzpatrick, Ajay Singhvi, Amin Arbabian</i>	
Learnable Regularization Via Padé Activation Units for Flexible Model-Based Beamforming.....	2121
<i>Christopher Khan, Ruud J. G. Van Sloun, Brett Byram</i>	

Development of a 50 MHz Linear Array for Endoscopic Imaging	2125
<i>Carlos-Felipe Roa, Jacqueline Caminiti, Jianhua Yin, Aaron Boyes, Emmanuel Chérin, Nidhi Singh, F. Stuart Foster, Christine E. M. Demore</i>	
Comparison of Weighted and Traditional Electrode Configurations in S0 Resonators.....	2129
<i>Ynshuai Liu, Tao Wu</i>	
Achievable Localization Precision of Clinical 3D Ultrasound Localization Microscopy (ULM).....	2132
<i>Stefanie Dencks, Nico Oblisz, Thomas Lisson, Georg Schmitz</i>	
Generative Adversarial Nets for Ultrafast Ultrasound Localization Microscopy Reconstruction.....	2136
<i>Yihui Sui, Xingyi Guo, Junjin Yu, Dean Ta, Kailiang Xu</i>	
Super Resolution Ultrasound Imaging Using Deep Learning Based Micro-Bubbles Localization	2140
<i>Feixiao Long, Weiguang Zhang</i>	
Robust Super-Resolution Ultrasound Microbubble Tracking with Optical Flow Guided Kalman Filter	2145
<i>Su-Lan Pu, Hao Guo, Hui-Wen Xie, Guang-Quan Zhou</i>	
Transformer-Based Microbubble Localization.....	2149
<i>Sepideh K. Gharamaleki, Brandon Helfield, Hassan Rivaz</i>	
A Hybrid Deep Learning Pipeline for Improved Ultrasound Localization Microscopy.....	2153
<i>Tristan S. W. Stevens, Elizabeth B. Herbst, Ben Luijten, Boudewine W. Ossenkoppele, Thierry J. Voskuil, Shiyang Wang, Jihwan Youn, Claudia Errico, Massimo Mischi, Nicola Pezzotti, Ruud J. G. Van Sloun</i>	
Analytic Optimization-Based Microbubble Tracking in Ultrasound Super-Resolution Microscopy.....	2157
<i>Md Ashikuzzaman, Brandon Helfield, Hassan Rivaz</i>	
ULM with Window TV-L1 Denoising and Various Interpolation Methods	2161
<i>Bingze Dai</i>	
Modified Residual Dense Network Based Super-Resolution Localization Method for High-Concentration Microbubbles	2165
<i>Shizhe An, Mei Qu, Anqi Huang, Haiyang Yu, Yuebo Wang, Minxi Wan, Yujin Zong</i>	
Optical Flow Assisted Super-Resolution Ultrasound Localization Microscopy Using Deep Learning	2169
<i>Hyeonjik Lee, Seok-Hwan Oh, Myeong-Gee Kim, Young-Min Kim, Guil Jung, Hyeon-Min Bae</i>	
Detection Performance in Ultrasound Super-Resolution Imaging	2173
<i>Iman Taghavi, Matthias Bo Stuart, Jørgen Arendt Jensen</i>	
Super-Resolution Ultrasound Microbubble Tracking Via Joint Probabilistic Data Association Filter	2177
<i>Fengling Meng, Yinran Chen, Xiongbiao Luo</i>	
A General Deep Learning Model for Ultrasound Localization Microscopy	2181
<i>Renxian Wang, Wei-Ning Lee</i>	
Transformer for Ultrafast Ultrasound Localization Microscopy	2185
<i>Gaobo Zhang, Yaoting Yue, Fei Dai, Xin Liu, Dean Ta</i>	
MR for ULTRA-SR: Improved Localization with Morphological Image Processing.....	2189
<i>Scott Schoen, Anthony E. Samir, Viksit Kumar</i>	

Ultrasound Super Resolution Using Vision Transformer with Convolution Projection Operation.....	2193
<i>Xilun Liu, Mohamed Almekkawy</i>	
GAN-Based Ultrasound Localization Microscopy.....	2197
<i>Wenting Gu, Zhuangzhi Yan, Boyi Li, Chengcheng Liu, Dean Ta, Xin Liu</i>	
SRUSTHI: Super Local Bubble Tracking Inspired by Machine Vision.....	2201
<i>Siva Saket Sripada, Tyrone M. Porter</i>	

Author Index