

International Congress on Ultrasonics 2015

Physics Procedia Volume 70

Metz, France
10 – 14 May 2015

Part 1 of 2

Editor:

Nico Declercq

ISBN: 978-1-5108-1365-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com



Editorial Introduction on Proceedings of the 2015 International Congress on Ultrasonics, 2015 ICU Metz

N.F. Declercq de Patin	1
Acoustic Resonator Optimisation for Airborne Particle Manipulation C. Devendran, D.R. Billson, D.A. Hutchins, T. Alan, A. Neild	6
Design of a Slender Tuned Ultrasonic Needle for Bone Penetration R. Cleary, A. Mathieson, R. Wallace, H. Simpson, M. Lucas	10
A Miniature Surgical Drill Using Ultrasonic/Sonic Frequency Vibration L. Li, A. Mathieson, M. Lucas	14
Using Nano-mechanics and Surface Acoustic Wave (SAW) for Disease Monitoring and Diagnostics at a Cellular Level in Red Blood Cells N. Sivanantha, C. Ma, D.J. Collins, M. Sesen, J. Brenker, R.L. Coppel, A. Neild, T. Alan	18
Acoustophoresis of Disks I. Leibacher, A. Garbin, P. Hahn, J. Dual	21
Measurements of Streams Agitated by Fluid Loaded SAW-devices Using a Volumetric 3-component Measurement Technique (V3V) F. Kiebert, J. König, C. Kykal, H. Schmidt	25
Microchannel Anechoic Corner for Microparticle Manipulation via Travelling Surface Acoustic Waves G. Destgeer, B.H. Ha, J. Park, J.H. Jung, A. Alazzam, H.J. Sung	30
Travelling Surface Acoustic Waves Microfluidics G. Destgeer, B.H. Ha, J. Park, J.H. Jung, A. Alazzam, H.J. Sung	34
Generation of Complex, Dynamic Temperature Gradients in a Disposable Microchip B.H. Ha, G. Destgeer, J. Park, J.H. Jung, H.J. Sung	38
Design and Implementation of the Frequency Control in an Ultrasonic Break Water-in-Oil Emulsion Chamber C.M.G. Atehortúa, N. Pérez, M.A.B. Andrade, J.C. Adamowski, L.O.V. Pereira	42
An Acoustothermal Heater for Paper Microfluidics towards Point-of-care Glucose Detection J. Park, B.H. Ha, G. Destgeer, J.H. Jung, H.J. Sung	46
Optimal Design of Silicon-based Chips for Piezo-induced Ultrasound Resonances in Embedded Microchannels F. Garofalo, T. Laurell, H. Bruus	50
Ultrasonic Friction Reduction in Elastomer – Metal Contacts and Application to Pneumatic Actuators T.M. Pham, J. Twiefel	55
Acoustic Levitation Transportation of Small Objects Using a Ring-Type Vibrator G.P.L. Thomas, M.A.B. Andrade, J.C. Adamowski, E.C.N. Silva	59
Model-based Feedback Control of an Ultrasonic Transducer for Ultrasonic Assisted Turning Using a Novel Digital Controller I. Ille, J. Twiefel	63
Analysis of a Non-resonant Ultrasonic Levitation Device M.A.B. Andrade, N. Pérez, J.C. Adamowski	68
Ultrasonic Enrichment of Flowing Blood Cells in Capillars: Influence of the Flow Rate P. Carreras, I. Gonzalez, O. Ahumada	72
Proposal of Pump Using Ultrasonic Transducer and Opposing Surface H. Shinada, Y. Ishino, M. Hara, D. Yamaguchi, M. Takasaki, T. Mizuno	76
Numerical Analysis of the Acoustic Radiation Force and Acoustic Streaming Around a Sphere in an Acoustic Standing Wave S. Sepehriranama, K.-M. Lim, F.S. Chau	80
A Numerically Efficient Damping Model for Acoustic Resonances in Microfluidic Cavities P. Hahn, J. Dual	85
Measurement of 3D-forces on a Micro Particle in Acoustofluidic Devices Using an Optical Trap A. Lamprecht, S. Lakämper, I.A.T. Schaap, J. Dual	89
A Numerical Analysis of Phononic-Assisted Control of Ultrasound Waves in Acoustofluidic Device R.P. Moiseyenko, H. Bruus	94
Stable Vortex Generation in Liquid Filled Wells by Mode Conversion of Surface Acoustic Waves J. Landskron, K. Schmidt, M. Kufner, G. Lindner	98
Numerical Study of Mode Waves in a Deviated Borehole Penetrating a Transversely Isotropic Formation W. Lin, L. Liu	102
Curing and Post-curing Viscoelastic Monitoring of an Epoxy Resin N. Ghodhbani, P. Marechal, H. Duflo	106
Guided Waves Attenuation in Water Immersed Corrugated Plates D. Meier, H. Franklin, J.L. Izbicki, M. Predoi, M. Rousseau	110
Ultrasonic Characterization of Water Saturated Double Porosity Media R. Bai, A. Tiné, A. Alem, H. Franklin, H. Wang	114

Study of Ultrasonic Machining by Longitudinal-torsional Vibration for Processing Brittle Materials-observation of Machining Marks T. Asami, H. Miura	118
Lamb Wave Propagation in Functionally Graded Piezoelectric Material Created by Internal Temperature Gradient Y. Dammak, J.H. Thomas, M.H. Ben Ghozlen	122
Imaging of Geological Conditions Ahead of Drill Bit Using a Drilling Hole Dipole Source X. Zhang, C. Su, W. Lin, J. Wang	126
Generation of Impulses from Single Frequency Inputs Using Non-linear Propagation in Spherical Chains D. Hutchins, J. Yang, P. Thomas, O. Akanji, L. Davis, P. Gelat, N. Saffari, S. Harput, S. Freear	131
Contactless Monitoring of Conductivity Changes in Vanadium Pentoxide Xerogel Layers Using Surface Acoustic Waves R. Rimeika, R. Sereika, D. Čiplys, V. Bondarenka, A. Sereika, M. Shur	135
Estimation of the Area of a Reverberant Plate Using Average Reverberation Properties H. Achdjian, E. Moulin, F. Benmeddour, J. Assaad	139
Efficient Algorithm Using a Broadband Approach to Determine the Complex Constants of Piezoelectric Ceramics F. Buiochi, C.Y. Kiyono, N. Peréz, J.C. Adamowski, E.C.N. Silva	143
Concentration Measurement in Bubbly Liquids – A Matter of Times J. Rautenberg, M. Münch	147
Characterization of Acoustic Streaming Beyond 100 MHz J. Eisener, A. Lippert, T. Nowak, C. Cairós, F. Reuter, R. Mettin	151
Characterization of the Spatio-temporal Response of Optical Fiber Sensors to Incident Spherical Waves I.A. Veres, P. Burgholzer, T. Berer, A. Rosenthal, G. Wissmeyer, V. Ntziachristos	155
Numerical Investigation of the Excitability of Zero Group Velocity Lamb Waves C.M. Grünsteidl, T.W. Murray, I.A. Veres	159
Radiation Properties of Truncated Cones to Enhance the Beam Patterns of Air-coupled Transducers F. Guarato, A.J. Mulholland, J.F. Windmill, A. Gachagan	163
A Non-destructive Imaging Method for Detecting Defect in Mortal Sample by High-intensity Aerial Ultrasonic Wave A. Osumi, Y. Ito	167
Experimental Study of Relationships between Ultrasonic Attenuation and Dispersion for Ceramic Matrix Composite A.A. Naumenko, S.A. Shcherbinin, D.I. Makariev, A.N. Rybyanets	171
Analysis of Rayleigh-lamb Modes in Soft-solids with Application to Surface Wave Elastography N. Benech, G. Grinspan, S. Aguiar, J. Brum, C. Negreira, M. Tanter, J.-L. Gennisson	175
Characterization of Acoustical Properties of a Phantom for Soft Tissues (PVCP and Graphite Powder) in the Range 20-45°C G. Cortela, N. Benech, W.C.A. Pereira, C. Negreira	179
Focalization of Acoustic Vortices Using Phased Array Systems J.F. Pazos-Ospina, F. Quiceno, J.L. Ealo, H.R.D. Muelas, J. Camacho	183
Temperature Increase Dependence on Ultrasound Attenuation Coefficient in Innovative Tissue-mimicking Materials R. Cuccaro, C. Magnetto, P.A.G. Albo, A. Troia, S. Lago	187
High Frequency Transducer Dedicated to the High-resolution In Situ Measurement of the Distance between Two Nuclear Fuel Plates G. Zaz, A. Dekkious, P.A. Meignen, Y. Calzavara, E. Le Clézio, G. Despaux	191
Adaptation of a High Frequency Ultrasonic Transducer to the Measurement of Water Temperature in a Nuclear Reactor G. Zaz, Y. Calzavara, E. Le Clézio, G. Despaux	195
A Study in Wedge Waves with Applications in Acoustic Delay- line P.-H. Tung, W.-C. Wang, C.-H. Yang	199
Model Based Sensitivity Analysis in the Determination of Viscoelastic Material Properties Using Transmission Measurements through Circular Waveguides F. Bause, H. Gravenkamp, J. Rautenberg, B. Henning	204
Computation of the Diffracted Field by an Elliptic Rigid or Elastic Scatterer: An Overview of the Numerical Limitations D. Cassereau, F. Mézière, M. Muller, E. Bossy, A. Derode	208
Ultrasound Propagation in Concentrated Suspensions: Shear-mediated Contributions to Multiple Scattering V.J. Pinfield, D. Michael Forrester, F. Luppé	213
Investigation of Scholte and Stoneley Waves in Multi-layered Systems O. Onen, Y.C. Uz	217
Marble Ageing Characterization by Acoustic Waves M. El Boudani, N. Wilkie-Chancellor, L. Martinez, R. Hébert, O. Rolland, S. Forst, V. Vergès-Belmin, S. Serfaty	222
Numerical Model of Lateral Electric Field Excited Resonator on Piezoelectric Plate Bordered with Viscous and Conductive Liquid A. Telykh, B. Zaitsev, I. Kuznetsova	227
Angular Spectrum Method for the Focused Acoustic Field of a Linear Transducer D. Belgroune, J.F. de Belleval, H. Djelouah	231
Analytical Sensor Response Function of Viscosity Sensors Based on Layered Piezoelectric Thickness Shear Resonators E. Benes, H. Nowotny, S. Braun, S. Radel, M. Gröschl	236
A Comparative Analysis of Ultrasound Velocity in Binary Liquid Systems of PPG by Mathematical and Experimental Methods A. Gayathri, T. Venugopal, K. Venkatramanan	241
High-order Acoustic Bessel Beam Generation by Spiral Gratings N. Jiménez, V.J. Sánchez-Morcillo, R. Picó, L.M. García-Raffi, V. Romero-García, K. Staliunas	245

The Phenomenon of Secondary Diffraction of Sound on Periodically Corrugated Surface J. Liu, N.F. Declercq, A. Shaw	249
Acousto-Optics as an Efficient Method for Physical Measurements S.V. Kulakov, O.L. Balyshova, A.Yu. Zhdanov, V.V. Kludzin, O.V. Shakin	253
Optimization of a Tunable Piezoelectric Resonator Using Phononic Crystals with Periodic Electrical Boundary Conditions M.-F. Ponge, B. Dubus, C. Granger, J. Vasseur, M.P. Thi, A.-C. Hladky-Hennion	258
Quaternion Formalism for the Intrinsic Transfer Matrix N. Cretu, M.I. Pop, A. Boer	262
Phonons in Diatomic Linear Viscoelastic Chains A. Palermo, A. Marzani	266
Propagation of Intense Acoustic Waves in Sonic Crystals N. Jiménez, V.J. Sánchez-Morcillo, A. Mehrem, E.-M. Hamham, R. Picó, L.M. García-Raffi	271
Dynamic Homogenization of Acoustic Metamaterials with Coupled Field Response C.F. Sieck, A. Alù, M.R. Haberman	275
Study of an Hybridization Gap in a One Dimensional Piezoelectric Phononic Crystal S.A. Mansoura, B. Morvan, P. Maréchal, A.C. Hladky-Hennion, B. Dubus	279
Analysis of a Phononic Crystal Constituted of Piezoelectric Layers Using Electrical Impedance Measurement S.A. Mansoura, P. Maréchal, B. Morvan, B. Dubus	283
Thin Wall Pipe Ultrasonic Inspection through Paint Coating M.V. Predoi, C.C. Petre	287
Acoustic Sensors for Fission Gas Characterization in MTR Harsh Environment F. Very, E. Rosenkrantz, D. Fourmentel, C. Destouches, J.F. Villard, P. Combette, J.Y. Ferrandis	292
Acoustic Characterization of an Aluminum Plate with Corrugated Surface C. Gauthier, D. Leduc, M.E. Elkettani, J.-L. Izbicki	296
Discrimination of Epoxy Curing By High Lamb Modes Order C. Gauthier, D. Leduc, J. Galy, M.E. Elkettani, J.-L. Izbicki	300
Separation of Leaky Lamb Modes for Ultrasonic Evaluation of Multilayer Structures J.-L. Le Calvez, T.M. Brill, C. Klieber	305
Investigation of the Higher Harmonic Lamb Wave Generation in Hyperelastic Isotropic Material N. Rauter, R. Lammering	309
Visualization of Leaky Ultrasonic Lamb Wave Experiments in Multilayer Structures C. Klieber, T.M. Brill, S. Catheline, Y. Vincensini, F. Mege	314
Computer-controlled High Resolution Arbitrary Waveform Generator (HRAWG) for Focusing Beamforming Applications A.A. Assef, J.M. Maia, E.T. Costa	318
Experimental Study of Passive Defect Detection and Localization in Thin Plates from Noise Correlation L. Chehami, E. Moulin, J. de Rosny, C. Prada, J. Assaad, F. Benmeddour	322
Interaction of a Guided Wave with a Crack in an Embedded Multilayered Anisotropic Plate: Global Matrix with Laplace Transform Formalism P. Mora, E. Ducasse, M. Deschamps	326
Material Characterization of Layered Structures with Ultrasound S. Kümmritz, M. Wolf, E. Kühnicke	330
Laser-Ultrasonic Measurement of Elastic Properties of Anodized Aluminum Coatings F. Singer	334
Inspection of Pipelines Using the First Longitudinal Guided Wave Mode P.S. Lowe, R. Sanderson, S.K. Pedram, N.V. Boulgouris, P. Mudge	338
High Temperature Ultrasonic Transducer for Real-time Inspection M.H. Amini, A.N. Sinclair, T.W. Coyle	343
Use of a Chirp-coded Excitation Method in order to Improve Geometrical and Acoustical Measurements in Wood Specimen P. Lasaygues, A. Arciniegas, L. Brancherieu	348
Surface Acoustic Wave-based Characterization of Randomly Distributed Surface Cracks R. Galos, I.A. Veres, S. Zamiri, M. Korotyaeva, M. Wenin, P. Burgholzer	352
Influences of Electrical Boundary Conditions on Second-Harmonic Generation of Ultrasonic Guided Wave Propagation in a Piezoelectric Plate M. Deng, Y. Xiang	356
Effect of Rayleigh Wave on Ultrasonic Underground Imaging R. Toh, S. Kawahara, T. Watanabe, S. Motooka	360
Simultaneous Measurement of Breathing and Heartbeat Using Airborne Ultrasound in a Standing Position K. Hoshiba, S. Hirata, H. Hachiya	364
Detection of Sub-surface Delamination Based on the Spatio-temporal Gradient Analysis over the A0-mode Lamb Wave Fields K. Teramoto, M.S. Rabbi, Md. T.I. Khan	368
Effects of Interlayer Interfacial Stiffness on Ultrasonic Wave Propagation in Composite Laminates at Oblique Incidence Y. Ishii, S. Biwa	372
Monitoring Local Solids Fraction Variations in Multiphase Flow using Pulse-echo Ultrasound J.E. Carlson, J. Stener, A. Sand, B.I. Pålsson	376

Ultrasonic Imaging through Thin Reverberating Materials B. Jiang, J.E. Carlson, M.C. Arranz, P. Lindblad, J. Öhman	380
The Gas Leak Detection Technology of the Spacecraft on Orbit Based on Acoustic Sensor Array Y. Rongxin, Q. Lei	384
Split-Spectrum Signal Processing for Reduction of the Effect of Dispersive Wave Modes in Long-range Ultrasonic Testing S.K. Pedram, A. Haig, P.S. Lowe, K. Thorneicroft, L. Gan, P. Mudge	388
Mechanical Strain Monitoring in Plates Using Wavelet Coherence Based Filter of Wideband Ultrasonic Guided Waves A.C. Kubrusly, A.M.B. Braga, N. Pérez, J.C. Adamowski, T.F. de Oliveira, J.P. von der Weid	393
Study on the Non-contact Acoustic Inspection Method for Concrete Structures by Using Strong Ultrasonic Sound Source T. Sugimoto, I. Uechi, K. Sugimoto, N. Utagawa, K. Katakura	398
Evaluation of Multiple Reflections in the Characterization of Anisotropic Materials by Through Transmission Ultrasonic Technique N. Pérez, F. Buiochi, D. Yamashita, M.A. Andrade, J.C. Adamowski	402
Non-destructive Detection of Air Traces in the UHT Milk Packet by Using Ultrasonic Waves E. Ouacha, B. Faiz, A. Moudden, I. Aboudaoud, H. Banouni, M. Boudaïb	406
Highly-Sensitive Defect-Selective Imaging and NDT via Resonant Nonlinearity of Defects I. Solodov	411
Diagnosis of Metal Plates with Defects Using Laser Vibrometer A.I. Korobov, M. Yu. Izosimova, N.V. Shirgina	415
Effect of Mixed Dislocations on Nonlinear Acoustic Responses in Plastic Deformation Materials W. Zhu, Y. Xiang, F.-Z. Xuan, H. Zhang	420
High Frequency Acoustic Sensor Dedicated to the High Resolution Measurement of Mechanical Properties P.-A. Meignen, E. Le Clézio, G. Despaux	424
Microcontroller Based Control System for Ultrasound NDT in Wood F.C. Domingos, J.M. Maia, O.M.A. Maia, F.K. Schneider	428
Effect of Thermal Degradation on High Temperature Ultrasonic Transducer Performance in Small Modular Reactors P.N. Bilgunde, L.J. Bond	433
Application of Waterman-Truell and the Dynamic Generalized Self-consistent Models on Concrete A. Villarreal, S. Solis-Najera, L. Medina-Gómez	437
Determination of the Flight Time of the Acoustic Waves Transmitted by the Cement Paste in Solidification by the Image Processing H. Banouni, B. Faiz, D. Izbaim, T. Ayaou, E. Ouacha, M. Boudaïb, I. Aboudaoud	442
Guided Wave Propagation and Diffraction in Plates with Obstacles: Resonance Transmission and Trapping Mode Effects E.V. Glushkov, N.V. Glushkova, A.A. Eremin, R. Lammering	447
Second Harmonic Generation of Shear Horizontal Guided Wave Propagation in Plate-like Structures W. Li, J. Choi, Y. Cho	451
The High-frequency Scattering of the S0 Lamb Mode by a Circular Blind Hole in a Plate H.Y. Zhang, J. Xu, S.W. Ma, D.A. Ta	455
High Frequency Acoustic Reflectometry for Solid/Liquid Interface Characterization: Application to Droplet Evaporation J. Carlier, M. Toubal, S. Li, P. Campistron, D. Callens, V. Thomy, V. Senez, B. Nongaillard	459
Diagnosis of Nonlinear Elastic Properties of the Boundary of Two Flat Rough Solids by Surface Acoustic Waves N.V. Shirgina, A.I. Kokshaiskiy, A.I. Korobov	463
Ultrasonic Determination of the Elastic Constants of Epoxy-natural Fiber Composites C.A. Meza Valencia, J.F. Pazos-Ospina, E.E. Franco, J.L. Ealo, D.A. Collazos-Burbano, G.F. Casanova Garcia	467
Detection of Small Stress Relaxation in Tightened Metallic Structures by Ultrasounds F. Augereau, A. Portal	471
Ultrasonic Direction Measurement Method Using Sensitivity Compensated Transmitting Signal and Pulse Compression D. Chimura, R. Toh, S. Motooka	476
Interaction of Lamb Waves with an Imperfect Joint of Plates: Reflection, Transmission and Resonance N. Mori, S. Biwa	480
Dry Storage Casks Monitoring by Means of Ultrasonic Tomography Y. Salchak, A. Bulavinov, R. Pinchuk, A. Lider, I. Bolotina, D. Sednev	484
Enhancement of Phased Array Ultrasonic Signal in Composite Materials using TMST Algorithm B. Abdessalem, D. Redouane, K. Ahmed, D. Lyamine, C. Farid	488
Nondestructive Measurement Material Characterization of Thermal Sprayed Nickel Aluminum Coatings by using Laser Ultrasound Technique C.H. Yeh, T.C. Wu, C.H. Yang	492
A Void Fraction Characterisation by Low Frequency Acoustic Velocity Measurements in Microbubble Clouds M. Cavaro	496
Analysis of Transient Acoustic Radiation Field from Pulse-driven Finite Aperture Piezoelectric Transducer A. Yamada, Y. Udagawa	501
Ultrasonic Fingerprinting of Structural Materials: Spent Nuclear Fuel Containers Case-study D. Sednev, A. Lider, D. Demyanuk, M. Kroening, Y. Salchak	505
Fast Inversion Calculation for Full-field Measurement of Material Properties with Laser Ultrasound Technique S.-P. Tseng, C.-H. Wu, C.-H. Yang	510

Robust Ultrasonic Waveguide based Distributed Temperature Sensing S. Periyannan, P. Rajagopal, K. Balasubramaniam	514
Modular Air-Coupled Ultrasonic Multichannel System for Inline NDT M. Bilcke, P. Lust, H. Naert, E. Blomme, S. Delrue, K. Van Den Abeele	519
Application of a Full Hybrid Ultrasonic System to Improve the Steelmaking Practices D. Kurzepa, G. Gremiaux, B. Krebs	523
Transmission of Larger Amplitude Ultrasound with SiC Transistor Pulser for Subharmonic Signal Measurements at Closed Cracks R. Koda, T. Mihara, K. Inoue, G. Konishi, Y. Udagawa	528
Influence of the Numerical Dispersion Effects in the Modelling of Ultrasonic Measurements J. Prikšaitis, L. Mažeika, R. Barauskas, E. Žukauskas, A. Kriščiūnas	532
Modular Ultrasound Array Doppler Velocimeter with FPGA-based Signal Processing for Real-time Flow Mapping in Liquid Metal R. Nauber, N. Thieme, H. Beyer, L. Büttner, D. Räßiger, S. Eckert, J. Czarske	537
The Transmission of Lamb Waves Across Adhesively Bonded Lap Joints to Evaluate Interfacial Adhesive Properties E. Siryabe, M. Renier, A. Meziāne, M. Castaings	541
Elastodynamic Models for Extending GTD To Penumbra and Finite Size Scatterers A. Kamta Djakou, M. Darmon, C. Potel	545
Ultrasonic Imaging in Liquid Sodium: A Differential Method for Damages Detection E. Lubeigt, S. Mensah, J.-F. Chaix, S. Rakotonarivo, G. Gobillot, F. Baqué	550
Relation between the Ultrasonic Attenuation and the Porosity of a RTM Composite Plate N.T. Duong, J. Duclos, L. Bizet, P. Pareige	554
Detection of Flat Bottom Holes Using Sparse deconvolution E. Carcreff, S. Bourguignon, A. Duclos, L. Simon, J. Idier	558
Noise Filtering in the Synthetic Transmit Aperture Imaging by Decomposition of the Time Reversal Operator: Application to Flaw Detection in Coarse-Grained Stainless Steels E.R.L. Villaverde, S. Robert, C. Prada	562
Comparison of Conventional Technique and Migration Approach for Total Focusing E. Carcreff, D. Braconnier	566
Multimodal Plane wave Imaging for Non-destructive Testing L. Le Jeune, S. Robert, E.L. Villaverde, C. Prada	570
Comparison between Time and Frequency Domain ToF Estimators for Signals in Close Proximity L. Svilainis, T.E.G. Alvarez-Arenas, K. Lukoseviciute, A. Chazaiachmetovas	574
Investigation of Pulser-transducer Matching Networks for Power Delivery Efficiency of Spread Spectrum Signals D. Kybartas, A. Rodriguez, L. Svilainis, A. Chazaiachmetovas	578
Evaluation of Material Nonlinearities using Rectangular Pulse Trains for Excitation A. Chazaiachmetovas, L. Svilainis, D. Kybartas, A. Aleksandrovas, D. Liaukonis	582
Thermal Elasticity Stresses Study in Composite System ‘Porous Silicon – Liquid’ M. Isaiev, K. Voitenko, V. Doroshchuk, D. Andrusenko, A. Kuzmich, A. Skryshevskii, V. Lysenko, R. Burbelo	586
A Metrological based Realization of Time-of-Flight Diffraction Technique R.C. Mayworm, A.V. Alvarenga, R.P.B. Costa-Felix	590
Nondestructive Testing Residual Stress Using Ultrasonic Critical Refracted Longitudinal Wave C. Xu, W. Song, Q. Pan, H. Li, S. Liu	594
Acoustic Emission of Composites Structures: Story, Success, and Challenges F. Dahmene, S. Yaacoubi, M. El Mountassir	599
Some Factors Affecting Time Reversal Signal Reconstruction Z. Prevorovsky, J. Kober	604
Nuclear Radiation Tolerance of Single Crystal Aluminum Nitride Ultrasonic Transducer B. Reinhard, B.R. Tittmann, A. Suprock	609
Contrast Optimization by Metaheuristic for Inclusion Detection in Nonlinear Ultrasound Imaging J.-M. Girault, S. Ménigot	614
Exploitation of the Reverberant Propagation of Elastic Waves in Structures: Towards a Concept of Low-resource SHM Sensor Network E. Moulin, F. Benmeddour, H. Achdjian, L. Chehami, J. Assaad, J. de Rosny, C. Prada	618
A Model to Predict Modal Radiation by Finite-sized Sources in Composite Plates with Account of Caustics M. Stévenin, A. Lhémery, S. Grondel	622
Shape of Short Ultrasonic Echo-pulses Focused in the Solid Plate Y.S. Petronyuk, V.M. Levin, S.A. Titov	626
Ultra Resolution in Acoustic Imaging of Bulk Microstructure in Solids V.M. Levin, Y.S. Petronyuk	631
Ray-based Simulation of Defect Echoes for Ultrasonic Non Destructive Testing V. Dorval, N. Leymarie, S. Chatillon	636
Feasibility of Passive Tomography of Extended Defects Using Ambient Elastic Noise Correlation T. Druet, B. Chapuis, E. Moulin	640
Simulation of Ultrasonic Materials Evaluation Experiments Including Scattering Phenomena due to Polycrystalline Microstructure D. Dobrovolskij, S. Hirsekorn, M. Spies	644

Non-Destructive Evaluation of Kissing Bonds using Local Defect Resonance (LDR) Spectroscopy: A Simulation Study S. Delrue, M. Tabatabaeipour, J. Hettler, K. Van Den Abeele	648
Acoustic Microscopy for Visualization and Evaluation of Ceramic-ceramic Contact Zone E.S. Morokov, V.M. Levin, Yu. S. Petronyuk, L.I. Podzorova, A.A. Il'icheva, I. Yu. Lebedenko, S.V. Anisimova	652
Interaction of the Shear Horizontal Bend Guided Mode (SHB) with Transverse Cracks P. Manogharan, X. Yu, Z. Fan, P. Rajagopal	656
Nondestructive Ultrasonic Inspection of Friction Stir Welds M. Tabatabaeipour, J. Hettler, S. Delrue, K. Van Den Abeele	660
Application of a Probabilistic Algorithm for Ultrasonic Guided Wave Imaging of Carbon Composites J. Hettler, M. Tabatabaeipour, S. Delrue, K. Van Den Abeele	664
Nonlinear Guided Wave Mixing for Localized Material State Characterization C.J. Lissenden, Y. Liu, V.K. Chillara, G. Choi, H. Cho	668
PPM-based System for Guided Waves Communication Through Corrosion Resistant Multi-wire Cables G. Trane, R. Mijarez, R. Guevara, D. Pascacio	672
AT on Buried LPG Tanks Over 13 m ³ : An Innovative and Practical Solution C. Di Fratta, A. Ferraro, P. Tscheliesnig, G. Lackner, V. Correggia, N. Altamura	676
Some Recent Advances of Ultrasonic Diagnostic Methods Applied to Materials and Structures (Including Biological Ones) L. Nobile, S. Nobile	681
Structural Health Monitoring in Cylindrical Structures Using Helical Guided Wave Propagation A. Baltazar, E. Rojas, R. Mijarez	686
Simulation of Sonar Signal Propagation in a Fluctuating Ocean I. Prokhorov, A. Sushchenko, V. Kan, E. Kovalenko	690
Single Particle Scattering Used for Characterization of Suspended Sediments. L. Bjørnø, I. Bjørnø	695
Acoustic Properties of Polyurethane Composition Reinforced with Carbon Nanotubes and Silicon Oxide Nano-powder W.A. Orfali	699
What does See the Impulse Acoustic Microscopy Inside Nanocomposites? V.M. Levin, Y.S. Petronyuk, E.S. Morokov, A. Celzard, S. Bellucci, P.P. Kuzhir	703
Imaging AOTFs with Low RF Power in Deep-UV and Mid-IR S. Valle, J. Ward, C. Pannell, N. Johnson	707
Backward Collinear Acousto-optic Interaction in Germanium Crystal in Terahertz Spectral Range P.A. Nikitin, V.B. Voloshinov	712
Visualization of Acoustic Evanescent Waves by the Stroboscopic Photoelastic Method K. Yamamoto, T. Sakiyama, H. Izumiya	716
Influence of Acoustic Field Structure on Polarization Characteristics of Acousto-optic Interaction in Crystals A.V. Muromets, A.S. Trushin	721
Influence of Paratellurite Anisotropy at the Characteristics of Acousto-optic Interaction S.N. Mantsevich, V.I. Balakshy, V. Ya. Molchanov, K.B. Yushkov	725
Acousto-optic Filtration of Interfering Light Beams for Visualization of Amplitude and Phase Structure of Small-size Objects A.S. Machikhin, L.I. Burmak, V.E. Pozhar, A.V. Viskovatykh	729
Acousto-optic Imaging System for in-situ Measurement of the High Temperature Distribution in Micron-size Specimens A.S. Machikhin, P.V. Zinin, A.V. Shurygin	733
Anisotropic Light Diffraction by Ultrasound in Crystals with Strong Acoustic Anisotropy A.S. Voloshin, V.I. Balakshy	737
Optimum Configuration for Acousto-optical Modulator Made of KGW M.M. Mazur, L.I. Mazur, V.E. Pozhar	741
Photoelastic and Acousto-optic Properties of KDP Crystal Applied in Wide Angle Tunable Filters T.V. Yukhnevich, V.B. Voloshinov	745
Phase and Group Velocities of Bulk Optic and Acoustic Waves in Crystals and Periodically Structured Media V.B. Voloshinov, N.V. Polikarpova	749
Discrete Diffraction of Light in 1D Photonic Lattice Induced in Lithium Niobate by Means of the Pyroelectric Effect V. Shandarov, V. Ryabchenok, A. Perin	754
Acousto-optics of Biaxial Crystals V.I. Balakshy, M.I. Kupreychik	758
Acousto-optic Figure of Merit Search J.B. Pfeiffer, K.H. Wagner	762
Measuring Photoelastic Constants with Schaefer-Bergmann Diffraction J.B. Pfeiffer, K.H. Wagner	766
Dynamic Behavior of a Multi-wavelength Acousto-optic Filter V. Quintard, H. Issa, A. Pérennou	770
Application of Optical Freedom Degrees Principle to Acousto-optic Devices K.V. Zaichenko, S.B. Gurevich, B.S. Gurevich	774

Research Cooperation between Catholic University of Leuven Campus Kortrijk and University of Gdańsk in Acousto-optics—A Historical recollection A. Śliwiński	779
Acoustically-controlled Spectral Optical Instruments V.I. Pustovoit, V.E. Pozhar	783
The Mode Method as a Framework for Theoretical Studies of Ultrasonic Waves Diffraction in Non-homogeneous Layered Structures G. Shkerdin	787
Multibeam Holographic Formation of the Polarization Photonic Structures in Polymer-dispersed Liquid Crystals A.O. Semkin, S.N. Sharangovich	791
Multiple Scattering Filter: Application to the Plane Defect Detection in a Nickel Alloy C. Trottier, S. Shahjahan, A. Schumm, A. Aubry, A. Derode	795
Laser-doppler Acoustic Probing of Granular Media with Varying Water Levels S. Pasquet, L. Bodet, Q. Vitale, F. Rejiba, R. Guérin, R. Mourguès, V. Tournat	799
Wave Speed Propagation Measurements on Highly Attenuative Heated Materials D.G. Moore, C.C. Ober, P.J. Rodacy, C.L. Nelson	803
Granular Phononic Crystals as Tunable Functional Switches R. Ganesh, S. Gonella	807
Multiple Scattering of Elastic Waves in Unidirectional Composites with Coated Fibers S. Biwa, T. Sumiya	811
Strongly Nonlinear Discrete Metamaterials: Origin of new Wave Dynamics V.F. Nesterenko	815
An Acoustothermal Microheater with Omni-temperature Controllability B.H. Ha, K.S. Lee, G. Destgeer, J. Park, J.H. Jung, H.J. Sung	819
Microbial Inactivation by Ultrasound Assisted Supercritical Fluids J. Benedito, C. Ortúño, R.I. Castillo-Zamudio, A. Mulet	824
Impact of Power Ultrasound on the Quality of Fruits and Vegetables During Dehydration M. Villamiel, J. Gamboa, A.C. Soria, E. Riera, J.V. García-Pérez, A. Montilla	828
New Ultrasonic Controller and Characterization System for Low Temperature Drying Process Intensification R.R. Andrés, A. Blanco, V.M. Acosta, E. Riera, I. Martínez, A. Pinto	833
Exploring the use of Low-intensity Ultrasonics as a Tool for Assessing the Salt Content in Pork Meat Products J.V. García-Pérez, M. de Prados, G. Martínez-Escrivá, R. González, A. Mulet, J. Benedito	837
<i>In Situ</i> Synchrotron Radiography and Spectrum Analysis of Transient Cavitation Bubbles in Molten Aluminium Alloy I. Tzanakis, W.W. Xu, G.S.B. Lebon, D.G. Eskin, K. Pericleous, P.D. Lee	841
Ultrasonic Spot and Torsion Welding of Aluminum to Titanium Alloys: Process, Properties and Interfacial Microstructure F. Balle, J. Magin	846
Influence of the Ultrasonic Power Applied on Freeze Drying Kinetics C. Brines, A. Mulet, J.V. García-Pérez, E. Riera, J.A. Cárcel	850
Ultrasonic Drying Processing Chamber V. Acosta, J. Bon, E. Riera, A. Pinto	854
Fabrication of ZnO Nanowire Based Piezoelectric Generators and Related Structures C. Opoku, A.S. Dahiya, C. Oshman, F. Cayrel, G. Poulin-Vittrant, D. Alquier, N. Camara	858
Propagation of Nonlinear Waves Passing Over Submerged Step E. Monsalve, A. Maurel, V. Pagneux, P. Petitjeans	863
Ultrasonic Spray Drying vs High Vacuum and Microwaves Technology for Blueberries N. Candia-Muñoz, M. Ramírez-Bunster, Y. Vargas-Hernández, L. Gaete-Garretón	867
Ultrasound-driven Megahertz Faraday Waves for Generation of Monodisperse Micro Droplets and Applications C.S. Tsai, R.W. Mao, S.K. Lin, S.C. Tsai, G. Boss, M. Brenner, G. Smaldone, S. Mahon, K. Shahverdi, Y. Zhu	872
Volumetric Security Alarm Based on a Spherical Ultrasonic Transducer Array U. Sayin, D. Scaini, D. Arteaga	876
Mobile Ultrasound Plane Wave Beamforming on iPhone or iPad using Metal- based GPU Processing H.J. Hewener, S.H. Tretbar	880
Quasi-field Method for Calculation of Surface Acoustic Wave Device's Characteristics S.S. Yankin, S.G. Suchkov, V.A. Nikolaevtsev, D.S. Suchkov, A. Yu. Pavlova, A. Talbi, S.A. Nikitov	884
Ultrasound Thermometry for Optimizing heat Supply During a Hyperthermia Therapy of Cancer Tissue M. Wolf, K. Rath, A.E.R. Ruiz, E. Kühnicke	888
Development of a Multichannel Pulser for Acoustic Scanning Microscopy A. Juhrig, M. Wolf, S. Kümmritz, M. Lenz, E. Kühnicke	892
Application of PMN-32PT Piezoelectric Crystals for Novel Air-coupled Ultrasonic Transducers R.J. Kazys, R. Sliteris, J. Sestoke	896
Dynamic Frequencies Correction in Piezoelectric Transducers using Genetic Algorithms F.J. Arnold, R.B. Battilana, M.C. Aranda	901
Evaluation of Mechanical Losses in Piezoelectric Plates using Genetic Algorithm F.J. Arnold, M.S. Gonçalves, F.R. Massaro Jr., P.S. Martins	905

Fabrication and Characterization of ZnO Nanowire-based Piezoelectric Nanogenerators for Low Frequency Mechanical Energy Harvesting G. Poulin-Vittrant, C. Oshman, C. Opoku, A.S. Dahiya, N. Camara, D. Alquier, L.-P.T.H. Hue, M. Lethiecq	909
Matched Pair of AOTFs with Net Zero Frequency-shift J.D. Ward, C.N. Pannell	914
Optimization of high Frequency 45° Acoustic Mirrors for Lab on Chip Applications S. Li, J. Carlier, F. Lefebvre, P. Campistron, D. Callens, G. Nassar, B. Nongaillard	918
Novel Approach for Optimization of Finite Element Models of Lossy Piezoelectric Elements A. Naumenko, S. Shcherbinin, M. Lugovaya, A. Nasedkin, A. Rybyanets	923
Modelling based on Spatial Impulse Response Model for Optimization of Inter Digital Transducers (SAW Sensors) for Non Destructive Testing D. Fall, M. Duquennoy, M. Ouافتouh, B. Piwakowski, F. Jenot	927
A Non-expensive Massive Transducer Array to Generate Helical Wavefronts in Air H.R.D. Muelas, J.F. Pazos-Ospina, J.L. Ealo	932
Fabrication of new Interdigital Transducers for Surface Acoustic Wave Device L. El Fissi, A. Jaouad, D. Vandormael, L.A. Francis	936
Reverberation Reduction in Capacitive Micromachined Ultrasonic Transducers (CMUTs) by Front-face Reflectivity Minimization A.S. Savoia, M. La Mura, B. Mauti, N. Lamberti, G. Caliano	941
Guided wave Generation in Elastic Layered Substrates with Piezoelectric Coatings and Patches E.V. Glushkov, N.V. Glushkova, A.A. Evdokimov, C. Zhang	945
Distributed Force Sensing using Frequency Response of Acoustic Waveguide Made on a Rubber Substrate S. Odajima, Y. Mizuno, M. Tabaru, K. Nakamura	949
Effect of Different Mn-doping Types on BLFG-PT High-temperature Piezoelectric Ceramics G. Jin, J. Chen, R. Dai, H. Zhang, J. Cheng	953
Gas Flow Sputtered Thick Layers of Columnar Lead Zirconate Titanate on Silicon Wafers For High Frequency Ultrasound Transducers F. Tiefensee, D. Kaden, A. Jakob, H.J. Quenzer, T. Jung	957
Laser Experimental Study of the Surface Vibrations of EMUS Sensor N. Wilkie-Chancellor, Y. Wang, L. Martinez, B. Roucaries, S. Serfaty	961
Preliminary Use of Ultrasonic Tomography Measurement to Map Tree Roots Growing in Earth Dikes B. Mary, G. Saracco, L. Peyras, M. Vennetier, P. Mériaux, D. Baden	965
Analysis and Optimization of a Piezoelectric Harvester on a Car Damper B. Lafarge, C. Delebarre, S. Grondel, O. Curea, A. Hacala	970
Mechanical Characterization of Ultrathin DLC Suspended Membranes for CMUT Applications S. Thibert, A. Ghis, M. Delaunay	974
Evaluation of the Side Lobe Level Properties of 1-3 and 2-2 Piezocomposite Sonar Transducers with Printed Triangular Shape Electrodes in Comparison to a Convention Transducer Comprising of Six Pzt Bars with Analogue Network. K. Nicolaides, J. Jideani	978
Low Voltage MEMS Digital Loudspeaker Array Based on Thin-film PZT Actuators S. Fanget, F. Casset, R. Dejaeger, F. Maire, B. Desloges, J. Deutzer, R. Morisson, Y. Bohard, B. Laroche, J. Escato, Q. Leclere	983
Modeling and Characterization of cMUT-based Devices Applied to Galvanic Isolation J. Heller, A. Boulmé, D. Alquier, S. Ngo, M. Perroteau, D. Certon	987
Normal Mode Theory Applied to Linear Arrays of Capacitive Micromachined Ultrasonic Transducers A. Boulmé, D. Gross, J. Heller, D. Certon	992
Tonpilz Underwater Acoustic Transducer Integrating Lead-free Piezoelectric Material R. Rouffaud, C. Granger, A.-C. Hladky-Hennion, M.P. Thi, F. Levassort	997
MRI Compatible Ultrasound Transducers for Simultaneous Acquisition of Coregistered Ultrasound to MRI Data D. Speicher, T. Bartscherer, F.J. Becker, J.W. Jenne, K. Mrosk, C. Degel, M. Günther, S. Tretbar	1002
LiTaO ₃ /Silicon Composite Wafers for the Fabrication of Low Loss Low TCF High Coupling Resonators for Filter Applications S. Ballandras, E. Courjon, T. Baron, J.-B. Moulet, T. Signamarcheix, W. Daniau	1007
On the Modeling of Electrical Response of SAW Resonator-based Sensors Versus Temperature S. Ballandras, T. Laroche, E. Courjon, W. Daniau, T. Baron, J. Garcia, S. Alzuaga	1012
Electrical Interfacing Circuit Discussion of Galloping-based Piezoelectric Energy Harvester Y.-Y. Chen, D. Vasic	1017
Magnetic Stoppers on Single Beam Piezoelectric Energy Harvesting Y.S. Shih, D. Vasic, F. Costa, W.J. Wu	1022
Surface Acoustic Wave Scattering from an Array of Irregularities Comparable with a Wavelength S.S. Yankin, S.G. Suchkov, I.A. Shatrova, D.S. Suchkov, S.V. Komkov, A.A. Pilovets, S.A. Nikitov	1027
Study of Vertical Sound Image Control Using Parametric Loudspeakers K. Shimizu, K. Itou, S. Aoki	1031
High Power Electromechanical Characterization of Piezoceramics and Low Frequency Ultrasound Transducers by Using Algorithm for Tracking Changes in Resonant Frequency and Electrical Impedance A. Petošić, M. Horvat, M. Budimir, P. Mateljak	1035
Investigation of the Surface Condition of an Electrode after Electropolishing under the Influence of Surface Acoustic Waves S. Tietze, M. Reißenweber, J. Schlemmer, G. Lindner	1039

Effects of Operational Conditions on Preparation of Oil in Water Emulsion Using Ultrasound D. Kobayashi, R. Hiwatashi, Y. Asakura, H. Matsumoto, Y. Shimada, K. Otake, A. Shono.....	1043
Memory Effect and Redistribution of Cavitation Nuclei B. Lixin, L. Weijun, D. Jingjun, L. Chao, X. Delong, W. Pengfei	1048
Acoustic, Thermal and Molecular Interactions of Polyethylene Glycol (2000, 3000, 6000) K. Venkatramanan, R. Padmanaban, V. Arumugam	1052
Monitoring of Lactic Fermentation Process by Ultrasonic Technique B. Alouache, A. Touat, T. Boutkedjirt, A. Bennamane.....	1057
Characterization of Olive Oil by Ultrasonic and Physico-chemical Methods B. Alouache, F.K. Khechena, F. Lecheb, T. Boutkedjirt.....	1061
Comparing Ultrasound and Mechanical Steering in a Biodiesel Production Process R.P.B. Costa-Felix, J.R.L. Ferreira	1066
A Numerical Study of the Formation of a Conical Cavitation Bubble Structure at low Ultrasonic Frequency C. Vanhille, C. Campos-Pozuelo, C. Granger, B. Dubus	1070
Nanoparticle-shelled Microbubbles Used for Medical Ultrasound Nonlinear Imaging F. Yang, H. Cui, Y. Liu, L. Yang, Y. Li, P. Chen, N. Gu	1074
Nonlinear Echoes from Encapsulated Antibubbles K. Johansen, S. Kotopoulos, A.T. Poortinga, M. Postema	1079
Novel Imaging Method of Continuous Shear Wave by Ultrasonic Color Flow Mapping Y. Yamakoshi, A. Yamamoto, Y. Yuminaka	1083
Comparison of Thresholds for Pulmonary Capillary Hemorrhage Induced by Pulsed-wave and B-mode Ultrasound D.L. Miller, C. Dou, K. Raghavendran	1087
Quantitative Characterization of Concentrated Cell Pellet Biophantoms Using Statistical Models for the Ultrasound Echo Envelope A. Cristea, E. Franceschini, F. Lin, J. Mamou, C. Cachard, O. Basset	1091
A Pulse Generator Based on an Arduino Platform for Ultrasonic Applications P. Acevedo, M. Vázquez, J. Durán, R. Petreare	1096
The Measurement of Temperature Gradients in a Soft Tissue Phantom Using PVDF Arrays: A Simulation Case Using the Finite Element Method (FEM) P. Acevedo, M. Vázquez, J. Durán, R. Petreare	1100
Dual Frequency Band Annular Probe for Volumetric Pulse-echo Optoacoustic Imaging M.A. Kalkhoran, F. Varray, D. Vray	1104
Orthogonal Encoding for High-bit Golay Excitation in Dual-frequency Harmonic Imaging C.-C. Shen, C.-K. Peng	1109
Towards Comparison of Ultrasound Dose Measurements—Current Capabilities and Open Challenges G. Durando, C. Guglielmone, J. Haller, O. Georg, A. Shaw, E. Martin, B. Karaböce	1114
Simulation of Transrib HIFU Propagation and the Strategy of Phased-array Activation Y. Zhou, M. Wang	1119
Iterative Time Reversal Simulation for Selective Focusing in Multi-target Nonlinear Media C. Su, Z. Peng, W. Lin	1123
A Temporal View of Soft Tissue Quantitative Ultrasound W.D. O'Brien, Jr.	1127
Effect of Dimensional Degradation on Ultrasonic Guided Waves in Bone System D.R. Thakare, P. Belanger, P. Rajagopal	1131
In and Ex-vivo Myocardial Tissue Temperature Monitoring by Combined Infrared and Ultrasonic Thermometries C. Engrand, D. Laux, J.-Y. Ferrandis, J.-C. Sinquet, R. Demaria, E. Le Clézio	1135
Attenuation Coefficient Estimation of the Healthy Human Thyroid In Vivo J. Rouyer, T. Cueva, A. Portal, T. Yamamoto, R. Lavarello	1139
Power Evaluation of High Intensity Focused Ultrasound Transducer Based on Acoustic Filed Measurement in Pre-focal Region C. Wang, H. Zheng, Y. Wang, Y. Cao	1144
New Combinational Method for Noninvasive Treatments of Superficial Tissues for Body Aesthetics Applications A.N. Rybyanets, A.A. Naumenko	1148
New Methods and Transducer Designs for Ultrasonic Diagnostics and Therapy A.N. Rybyanets, A.A. Naumenko, O.A. Sapozhnikov, V.A. Khokhlova	1152
The Biological Sensor for Detection of Bacterial Cells in Liquid Phase Based on Plate Acoustic Wave I. Borodina, B. Zaitsev, A. Shikhabudinov, O. Guliy, O. Ignatov, A. Teplykh	1157
Adaptive Spatial Filtering with Principal Component Analysis for Biomedical Photoacoustic Imaging R. Nagaoka, R. Yamazaki, Y. Saito	1161
Tissue Characterization on Ultrasound Harmonic Signals Using Nakagami Statistics F. Lin, A. Cristea, C. Cachard, O. Basset	1165
Realistic Simulations for the Evaluation of Monomodal Registration Algorithms of 3D Pelvic Ultrasound Images B. Presles, M. Fargier-Voiron, M. Alessandrini, M.-C. Biston, P. Pommier, S. Rit, D. Sarrut, H. Liebgott	1169
Effect of Non-speckle Echo Signals on Tissue Characteristics for Liver Fibrosis Using Probability Density Function of Ultrasonic B-mode Image S. Mori, S. Hirata, T. Yamaguchi, H. Hachiya	1173

Segmentation of Inhomogeneous Skin Tissues in High-frequency 3D Ultrasound Images, the Advantage of Non-parametric Log-likelihood Methods	1177
B. Sciolla, P. Ceccato, L. Cowell, T. Dambray, B. Guibert, P. Delachartre	
Automatic Emboli Detection System for the Artificial Heart	1181
T. Steifer, M. Lewandowski, P. Karwat, M. Gawlikowski	
Experimental Method for Microbubbles Dynamics Monitoring and Radius Sizing	1185
D. Fouan, Y. Achaoui, C. Payan, S. Mensah	
The Parametric Images of Microbubbles and Tissue Mimicking Phantoms Based on the Nakagami Parameters Map	1190
B. Nardjess, D. Hakim, A. Bouakaz	
Investigation of Post-mortem Tissue Effects Using Long-time Decorrelation Ultrasound	1195
G. Csány, L. Balogh, M. Gyöngy	
Optimized Bias Voltage Modulation Sequence for cMUT and Nonlinear Contrast Imaging	1200
D. Fouan, A. Bouakaz	
Preliminary Results in the Application of Ultrasound During the Injection of Drugs	1204
H.R.D. Muelas, J.F. Pazos-Ospina, G.G.F. Casanova, J.L. Ealo	
Ultrasound-image-based Texture Variability along the Carotid Artery Wall in Asymptomatic Subjects with Low and High Stenosis Degrees: Unveiling Morphological Phenomena of the Vulnerable Tissue	1208
S. Golemati, S. Lehreas, N.N. Tsiparas, K.S. Nikita, A. Chatzioannou, D.N. Perrea	
Ipsi- and Contralateral Motor Response Using Ultrasound-induced Neurostimulation in Deeply Anesthetized Mice	1212
H. Kamimura, S. Wang, H. Chen, Q. Wang, C. Aurup, K. Fan, A. Carneiro, E. Konofagou	
High Frame Rate Super Resolution Imaging Based on Ultrasound Synthetic Aperture Scheme	1216
T. Wada, Y. Ho, K. Okubo, N. Tagawa, Y. Hirose	
Automatic Cataract Classification Based on Ultrasound Technique Using Machine Learning: A Comparative Study	1221
M. Caixinha, E. Velte, M. Santos, F. Perdigão, J. Amaro, M. Gomes, J. Santos	
Visual Investigation of Heating Effect in Liver and Lung Induced by a HIFU Transducer	1225
B. Karaböce, H.O. Durmus	
Evaluating the Relation of Trace Fracture Inclination and Sound Pressure Level and Time-of-flight QUS Parameters Using Computational Simulation	1229
P.T. Rosa, A.J. Fontes-Pereira, D.P. Matusin, M.A. von Krüger, W.C.A. Pereira	
Assessment of Flatness of Assumed Planar Surfaces for Ultrasound Investigation of Elastic Surfaces	1233
A.G. González, E.N. Blanco, M.C. Hemmisen, H. Jensen, J.A. Jensen, J.E. Wilhjelm	
Investigation of Microbubble Composition on Ultrasonic Dispersion Properties for Biosensing Applications	1237
M.B. Callens, E. Verboven, K. Van Den Abeele	
Characterization of Pressure Fields of Focused Transducers at TÜBİTAK UME	1241
B. Karaböce, A. Şahin, A.T. İnce, Y. Skarlatos	
Assessment of Liver Viscoelasticity for the Diagnosis of Early Stage Fatty Liver Disease Using Transient Elastography	1246
J.-P. Remenieras, M. Dejobert, C. Bastard, V. Miette, J.-M. Perarnau, F. Patat	
An Eye-adapted Beamforming for Axial B-scans Free from Crystalline Lens Aberration: <i>In vitro</i> and Ex Vivo Results with a 20 MHz Linear Array	1250
T. Matéo, Y. Mofid, J.-M. Grégoire, F. Ossant	
Generating Shear Waves in the Human Brain for Ultrasound Elastography: A New Approach	1255
E. Nicolas, S. Callé, J.-P. Remenieras	
Sound Speed Measurement of Chicken Liver from 22 °C to 60 °C	1260
R. Martínez-Valdez, M.V.H. Contreras, A. Vera, L. Leija	
Relevance of Adipose Tissue Stiffness Evaluated by Transient Elastography (AdipoScan™) in Morbidly Obese Patients before Bariatric Surgery	1264
M. Sasso, M. Abdennour, Y. Liu, H. Hazrak, J. Aron-Wisnewsky, J.-L. Bouillot, G. Le Naour, P. Bedossa, J. Torjman, K. Clément, V. Miette	