Monday, July 7

Plenary session
09:45 - 10:30
Keynote 1

Chairman: to be announced

50 years of nonlinear acoustics
Konstantin Naugolnykh
University of Colorado/Zeltech, Boulder, United States

Parallel sessions
11:00 - 12:00
General theory and numerical methods of nonlinear acoustics 1

Chairman: to be announced

Consistent third order nonlinear acoustics
Lars Söderholm
Royal Institute of Technologt (KTH), Mechanics, Stockholm

Shock waves and absorption of general nonlinear progressive waves
Francois Coulouvrat ; Alexandra Loubeau ; Regis Marchiano
Universite Pierre et Marie Curie, Institut Jean Le Rond d'Alembert, Paris, France

Hamiltonian formalism in bubble dynamics
Alexey Maksimov
V.I. Il'ichev's Pacific Oceanoloical Institute, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russian Federation

Parallel sessions
11:00 - 12:00
Special session on Nonlinear acoustics applied to evaluation and testing 1

Chairman: to be announced

NDT of grain boundaries in microcrystalline aluminum alloy using methods of nonlinear acoustics
Maria Izosimova ; Alexander Korobov ; Dmitry Mekhedov
M.V. Lomonosov Moscow State University, Faculty of Physics, Department of Acoustics, Moscow, Russian Federation

Characterization of granular media compaction process by the methods of nonlinear acoustics
Claude Inserra [1]; Vincent Tournat [1]; Vitalyi Gusev [2]
[1]LAUM, CNRS, Université du Maine, Le Mans, France; [2]LPEC, CNRS, Université du Maine, Le Mans, France

Nonlinear ultrasonic spectroscopy used to detection of ceramic structure damage
Marta Korenska [1]; Monika Manychova [2]
[1]Brno University of Technology, Fac. of Civil Engineeering, Physics Department, Brno, Czech Republic; [2]Brno University of Technology, FCE, Department of Building Structures, Brno, Czech Republic

11:00 - 12:00
Nonlinear acoustics of the atmosphere, the ocean and the earth and nonlinear underwater acoustics 1

Chairman: to be announced

Infrasonic precursor of tropical cyclone
Konstantin Naugolnykh
University of Colorado/Zeltech, Boulder, United States

Evidence for nonlinear atmospheric effects in infrasound propagation from explosions of different types and yields
Sergey Kulichkov
Oboukhov Institute of Atmospheric physic, Radioacoustic laboratory, Moscow, Russian Federation

A study on nonlinear propagation of infrasound using the NPE model
David Norris [1]; Kevin Bongiovanni [2]; James Masi [2]
[1]BBN Technologies, Arlington, VA, United States; [2]BBN Technologies, Middletown, RI, United States

11:00 - 12:00
Thermoacoustics 1

Chairman: to be announced

Nonlinear heat transport between the stack and the heat-exchangers of standing-wave thermoacoustic refrigerators
Philippe Blanc-Benon [1]; Arganthaël Berson [2]
[1]Ecole Centrale de Lyon - LMFA -UMR CNRS 5509, Centre Acoustique, Ecully Cedex, France; [2]Ecole Centrale de Lyon - LMFA - UMR CNRS 5509, Centre Acoustique, Ecully, France

Suppression of nonlinear effect by applying phase adjuster in loop-tube-type thermoacoustic prime mover
Shin-ichi Sakamoto ; Shintaro Komiya ; Jiro Senda ; Yoshiaki Watanabe
Doshisha University, Faculty of Engineering, Kyotanabe city, Kyoto, Japan

Numerical simulations of self-excited thermoacoustic oscillations in a framework of the boundary-layer theory
Dai Shimizu ; Nobumasa Sugimoto
Osaka University, Graduate School of Engineering Science, Department of Mechanical Science, Osaka, Japan

Parallel sessions
13:00 - 14:00
General theory and numerical methods of nonlinear acoustics 2

Chairman: to be announced

Nonlinear oscillations in discretely continual system
Alexander Potapov
Nizhny Novgorod Technical University, Nizhny Novgorod, Russian Federation

On the behavior of nonlinear ultrasonic waves in water-air mixtures
Christian Vanhille [1]; Cleofé Campos-Pozuelo [2]
[1]Universidad Rey Juan Carlos, Móstoles, Madrid, Spain; [2]Consejo Superior de Investigaciones Científicas, Madrid, Spain

Performance study of the iterative Nonlinear Contrast Source method
Martin Verweij [1]; Jacob Huijssen [1]; Nico de Jong [2]
[1]Delft University of Technology, Laboratory of Electromagnetic Research, Delft, Netherlands; [2]Erasmus Medical Center, Laboratory of Experimental Echocardiography, Rotterdam, Netherlands

13:00 - 14:00
Special session on Nonlinear acoustics applied to evaluation and testing 2

Chairman: to be announced

Quantitative evaluation of harmonic generation at contacting interface
Shiro Biwa ; Shigeru Yamaji ; Eiji Matsumoto
Kyoto University, Graduate School of Energy Science, Kyoto, Japan

The evaluation of the bonding state at the interface between bonded solids by the contour of nonlinear parameters
De Zhang ; Jianjun Chen ; Yiwei Mao
The Institute of Acoustics, Nanjing University, Nanjing, China

Higher harmonic imaging of tight cracks in glass plates and welded interfaces with mode-converted transverse wave
Koichiro Kawashima [1]; Kouichi Sekino [2]; Kazuyoshi Ichigo [3]
[1]Ultrasonic Materials Diagnosis Lab., Nagoya, Japan; [2]Japan Power Engineering and Ispection Co., Nondesrtuctive Evaluation Center, Yokohama, Japan; [3]Central Motor Wheel Co., Engineering Development Departmnet, Toyota, Japan

13:00 - 14:00
Nonlinear acoustics of the atmosphere, the ocean and the earth and nonlinear underwater acoustics 2

Chairman: to be announced

Nonlinear shaping mechanism for the spectrum of acoustic-gravity waves in the atmosphere
Igor Chunchuzov
Obukhov Institute of Atmospheric Physics, Moscow, Russian Federation

Nonlinear propagation of sonic booms in turbulent atmosphere: laboratory scale experiment and theoretical analysis
Mikhail Averiyanov [1]; Vera Khokhlova [1]; Sebastien Ollivier [2]; Philippe Blanc-Benon [2]
[1]Moscow State University, Faculty of Physics, Department of Acoustics, Moscow 119992, Russian Federation; [2]Ecole Centrale de Lyon, Ecully Cedex, France

Nonhysteretic nonlinear losses at intergrain contacts in rocks: application to tidal modulation phenomena in seismics
Vladimir ZAITSEV [1]; Vadim Saltykov [2]; Lev Matveev [3]
[1]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation; [2]Kamchatkan Branch, Geophysical Survey Russian Academy of Sciences, Petropavlovsk-Kamchatsky, Russian Federation; [3]Institute of Applied Physics, Russian Academy of Sciences, Nonlinear wave processes, Nizhny Novgorod, Russian Federation

13:00 - 14:00
Thermoacoustics 2

Chairman: to be announced

Experimental analysis of nonlinear phenomena in a thermoacoustic system
Diana Baltean Carles [1]; Philippe Debesse [1]; François Lusseyran [2]; Maurice Xavier François [1]; Diana Baltean Carles [2]; Diana Baltean-Carles [2]
[1]Université Pierre et Marie Curie (UPMC) and Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur (LIMSI), Orsay, France; [2]Laboratoire d'Informatique pour la Mécanique et les Sciences de l'Ingénieur (LIMSI), Orsay, France

Photodeflection spectroscopy of the nonlinear crystals with the using of bessel light beams
Pavel Astakhov [1]; George Mityurich [2]
[1]Gomel Engineer Institute of the Ministry for Emergency situations of Republic Belarus, Department of Natural Science, Gomel, Belarus; [2]Belarusian Trade-Economical University, Gomel, Belarus

Experimental study of the acoustic field generated by proton beams in water
Victor Bychkov [1]; Victor Demidov [2]; Elena Demidova [2]; Boris Ishkhanov [3]; Nikolai Krasnov [1]; Victor Luk'yashin [2]; Vladimir Lyashuk [2]; Vitalyi Maslyanyi [1]
[1]Russian Metrological Institute of Technical Physics and Radio Engineering, Moscow, Russian Federation; [2]Alikhanov Institute for Theoretical and Experimental Physics(ITEP), Moscow, Russian Federation; [3]Skobeltsyn Institute of Nuclear Physics (SINP), Lomonosov Moscow State University, Moscow, Russian Federation

Parallel sessions
14:00 - 15:10
General theory and numerical methods of nonlinear acoustics 3

Chairman: to be announced

Symmetry analysis applied to nonlinear acoustics : principle and application for acoustic signal processing
Serge Dos Santos [1]; Camille Plag [2]; Mathieu Domenjoud [1]
[1]ENI Val de Loire, U930 INSERM-CNRS-Universite Francois Rabelais, Blois, France; [2]ENI Val de Loire, U390 INSERM-CNRS-Universite Francois Rabelais, Blois, France

Weak-nonlinear acoustic pulse dynamics in a waveguide channel with longitudinal inhomogeneity
Mikhail Bisyarin
St.Petersburg University, Faculty of Physics, St.Petersburg, Russian Federation

Variational and analytical methods in nonlinear acoustics
Ivan Molotkov
IZMIRAN, Theoretical Physics, Troitsk, Russian Federation

14:00 - 15:00
Special session on Nonlinear acoustics applied to evaluation and testing 3

Chairman: to be announced

Accurate measurement of closed cracks using subharmonic phased array
Yoshikazu Ohara [1]; Setsu Yamamoto [1]; Hiroaki Endo [1]; Tsuyoshi Mihara [2]; Kazushi Yamanaka [1]
[1]Tohoku University, Department of Materials Processing, Sendai, Japan; [2]University of Toyama, Toyama, Japan

Micro-damage evaluation and remaining fatigue life assessment with nonlinear vibro-modulation technique
Dimitri Donskoy [1]; Alexander Chudnovsky [2]; Edward Golovin [2]; Andrei Zagrai [3]
[1]Stevens Institute of Technology, Hoboken, United States; [2]University of Illinois at Chicago, Chicago, United States; [3]New Mexico Institute of Mining and Technology, Socorro, United States

Real-time monitoring of damage evolution in aerospace materials using nonlinear acoustics
Theodore E. Matikas [1]; Alkis Paipetis [1]; Vassilios Kostopoulos [2]
[1]University of Ioannina, Materials Engineering, Ioannina, Greece; [2]University of Patras, Department of Mechanical Engineering & Aeronautics, Patras, Greece

14:00 - 15:00
Nonlinear acoustics of the atmosphere, the ocean and the earth and nonlinear underwater acoustics 3

Chairman: to be announced

Non-linear shock wave propagation in heterogeneous fluids : a numerical approach beyond the parabolic approximation with application to sonic boom
Franck Dagrau [1]; Francois Coulouvrat [2]; Nicolas Heron [3]; Regis Marchiano [4]; Gilbert Roge [3]
[1]Universite Pierre et Marie Curie. Paris 6, PARIS 6, France; [2]CNRS, Paris 6, France; [3]Dassault Aviation, Saint cloud, France; [4]Universite Pierre et Marie Curie, Paris 6, France

On a problem of propagation of shock waves generated by explosive volcanic eruptions
Vladimir Gusev [1]; Aleksey Sobissevitch [2]
[1]Moscow State University, Physical Faculty, Department of Acoustics, Moscow, Russian Federation; [2]Schmidt Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russian Federation

Acoustic nonlinearity, cavitation strength and bubble distribution of upper sea water layer
Victor Akulichev ; Vladimir Bulanov
Pacific Oceanological Institute, Vladivostok, Russian Federation

14:00 - 15:00
Nonlinear acoustics in fluids 1

Chairman: to be announced

Acoustic radiation force caused by non-periodic in time sound beam in unbounded fluid volumes
Anna Perelomova
Gdansk University of Technology, Faculty of Applied Physics and Mathematics, Gdansk, Poland

Nonlinear change of on-axis pressure and intensity maxima positions in focused ultrasonic beams
Yuri Makov [1]; Victor Sánchez-Morcillo [2]; Francisco Camarena [2]; Víctor Espinosa [2]
[1]Moscow State University, Deparment of Acoustics, Moscow, Russian Federation; [2]IGIC-UPV, Física Aplicada, Gandia, Spain

Cavitations development in a liquid behind strong acoustic waves
Dmitrii Voronin ; Vyacheslav Teslenko
Lavrentyev Institute of Hydrodynamics, Siberian branch of the Russian Academy of Science, Novosibirsk, Russian Federation

Parallel sessions
15:30 - 16:30
General theory and numerical methods of nonlinear acoustics 4

Chairman: to be announced

Spatial distributions of acoustic parameters in nonlinear focused beams of various geometry
Olga V. Bessonova ; Vera A. Khokhlova
Moscow State University, Department of Acoustics, Faculty of Physics, Moscow, Russian Federation

Focusing gains of high intensity focused ultrasound beams
Vera Khokhlova [1]; Olga Bessonova [2]; Michael Canney [3]; Michael Bailey [3]; Lawrence Crum [3]
[1]Moscow State University/University of Washington, Moscow, Russian Federation; [2]Moscow State University, Department of Acoustics, Moscow, Russian Federation; [3]University of Washington, Center for Industrial and Medical Ultrasound, Seattle, United States

Autowaves in relaxing acoustically active nonequilibrim media
Nonna Molevich [1]; Rinat Galimov [2]
[1]P.N. lebedev Physical Institute RAS, Samara Branch, Theoretical physics, Samara, Russian Federation; [2]Samara state aerospace university, Physics, Samara, Russian Federation

15:30 - 16:30
Special session on Nonlinear acoustics applied to evaluation and testing 4

Chairman: to be announced

Experimental investigations on non-linear slow dynamics of damaged materials: correlation with acoustic emission
Mourad Bentahar [1]; Anne Marec [2]; Rachid El Guerjouma [2]; Jean-Hugh Thomas [2]; Vincent Tournat [2]
[1]LAUM, CNRS, University du Maine, Le Mans, France; [2]LAUM, CNRS, Université du Maine, Le Mans, France

Pre-Crack damage characterization of high-strength steels under cyclic loading
Jan Achenbach
Northwestern University, Center for Quality Engineering, Evanston, Illinois, United States

Laser imaging of airborne acoustic emission by nonlinear defects
Igor Solodov ; Daniel Döring ; Gerd Busse
University of Stuttgart, Stuttgart, Germany

15:30 - 16:30
Nonlinear acoustics of the atmosphere, the ocean and the earth and nonlinear underwater acoustics 4

Chairman: to be announced

Nonlinear internal waves on a shelf: application of the adiabatic approximation
Samuil Rybak ; Andrey Serebryany
Andreyev Acoustics Institute, Moscow, Russian Federation

The radiation of microbaroms from isolated hurricanes
Roger Waxler ; Claus Hetzer ; Jericho Cain ; Kenneth Gilbert ; Carrick Talmadge ; Henry Bass
University of MS, NCPA, Oxford, United States

Monitoring the state of the magmatic structures of Elbrus volcano based on observations of lithospheric strains
Vadim Milyukov ; Alexey Mironov ; Andrey Myasnikov
Sternberg Astronomical Institute of Moscow University, Moscow, Russian Federation

15:30 - 16:30
Nonlinear acoustics in fluids 2

Chairman: to be announced

About diffraction phenomena accompanying nonlinear transformations in focused acoustic fields
Dmitry Kasiyanov ; Mikhail Deriabin
Radiophysical Research Institute, Acoustics and Seismophysics, Nizhny Novgorod, Russian Federation

Historical development of acoustical parametric oscillators
Lev Ostrovsky [1]; Mack A. Breazeale [2]
[1]University of Colorado, Zel Technologies, Boulder, United States; [2]The University of Mississippi, NCPA, University, United States

Spatio-temporal dynamics in parametric sound generation
Victor J. Sanchez-Morcillo ; Isabel Perez-Arjona ; Victor Espinosa
Universidad Politecnica de Valencia, Instituto para la Gestion Int. de Zonas Costeras, Gandia, Spain

Plenary session
16:30 - 17:00
Keynote 2

Chairman: to be announced

What problems of Nonlinear Acoustics seem to be most important and interesting today?
Lev Ostrovsky [1]; Oleg Rudenko [2]
[1]Zel Technologies/NOAA ESRL, and University of Colorado at Boulder, Boulder, United States; [2]Blekinge Institute of Technology, Mechanical Engineering, Karlskrona, Sweden

Tuesday, July 8

Plenary session
08:30 - 09:30
Keynote 3

Chairman: to be announced

Nonlinear interactions in high-power ultrasonic processing systems
Juan Gallego-Juárez
Instituto de Acústica, CSIC, Madrid, Spain

Parallel sessions
09:30 - 10:30
Nonlinear acoustics of medicine and biology 1

Chairman: to be announced

Measurement of secondary waves generated by nonlinear vibration of microbubbles in the crossed beams of two ultrasonic frequencies
Iwaki Akiyama [1]; Naoki Yoshimoto [2]; Kenji Yoshida [2]; Yoshiaki Watanabe [2]
[1]Shonan Institute of Technology, Deparment of Electric and Electronic Engineering, Fujisawa, Japan; [2]Doshisha University, Deparment of Electronic Engineering, Kyotanabe, Japan

Techniques to improve subharmonic emission from encapsulated microbubbles
Dong Zhang ; Xiaoyu Xi ; Yanjun Gong ; Xiufen Gong
Institute of Acoustics, Nanjing University, Nanjing, China

Tomography of spatial distribution of scatterer in nonlinear processes of the second and third orders
Valentin Burov ; Semen Evtukhov ; Andrey Shmelev ; Olga Rumyantseva
Moscow State University, Department of Acoustics, Physics Faculty, Moscow, Russian Federation

09:30 - 10:30
Nonlinear acoustics of the atmosphere, the ocean and the earth and nonlinear underwater acoustics 5

Chairman: to be announced

Parametric array signal dispersion in shallow water
Igor Esipov [1]; Sergey Trasov [2]; Vasily Voronin [2]; Oleg Popov [3]
[1]N. Andreyev Acoustics institute, Physical acoustics lab, Moscow, Russian Federation; [2]South Federal University, Institute of Technology, electro- and hydroacoustics chair, Taganrog, Russian Federation; [3]N. Andreyev Acoustics institute, Ocean acoustics lab, Moscow, Russian Federation

Nonlinear traveling waves in a weakly stratified two-layered fluid
Janna Maltseva ; Nikolay Makarenko
Lavrentyev Institute of Hydrodynamics, Novosibirsk, Russian Federation

Anisotropy of Poisson's ratio in transversely isotropic rocks
Svetland Tokmakova
N.N. Andreev Acoustics Institute, Moscow, Russian Federation

09:30 - 10:30
Devices and industrial applications of nonlinear acoustics 1

Chairman: to be announced

Vibration of the String with Nonlinear Contact Condition
Anatoli Stulov ; Dmitri Kartofelev
Institute of Cybernetics at TUT, Tallinn, Estonia

A simulation tool for brassiness studies, preliminary results obtained from brass instrument's bores
Joël Gilbert [1]; Ludovic Menguy [1]; D.Murray Campbell [2]
[1]Lab. Acoustique de l'Univ. du maine - CNRS, Le Mans, France; [2]University of Edinburgh, Edinburgh, United Kingdom

Dynamic single sideband modulation for realizing parametric loudspeaker
Shinichi Sakai [1]; Tomoo Kamakura [2]
[1]The University of Electro-Communications, Kamakura, Japan; [2]The University of Electro-Communications, Tokyo, Japan

09:30 - 10:30
Nonlinear acoustics in fluids 3

Chairman: to be announced

Effects of the parametric interaction on the topological charge of acoustical vortices
Régis Marchiano [1]; Jean-Louis Thomas [2]
[1]Université Pierre et Marie Curie, Institut Jean Le Rond d'Alembert, UMR CNRS 7190, Paris,

France; [2]Université Pierre et Marie Curie, Institut des Nanosciences de Paris, UMR CNRS 7588, Paris, France

The mechanism of generation of physical structures
Ludmila Petrova
Moscow State University, Moscow, Russian Federation

The effects of small-amplitude perturbations on bore structure
Pablo Luis Rendón
Universidad Nacional Autónoma de México, Laboratorio de Acústica y Vibraciones, CCADET, Mexico, Mexico

Parallel sessions
11:00 - 12:00
Nonlinear acoustics of medicine and biology 2

Chairman: to be announced

Study of third-order nonlinearity parameter C/A for biological specimens
Xiufen Gong ; Xiaozhou Liu ; Dong Zhang
Nanjing University, Institute of Acoustics, Nanjing, China

On the acoustic properties of polymer-shell ultrasonic contrast agents
Dmitry Grishenkov [1]; Claudio Pecorari [1]; Torkel Brismar [2]; Gaio Paradossi [3]
[1]Royal Institute of Technology, Aeronautical and Vehicle Engineering, Stockholm, Sweden;
[2]Karolinska University Hospital, CLINTEC, Department of Radiology, Stockholm, Sweden;
[3]Università di Roma Tor Vergata, Dipartimento di Chimica, Roma, Italy

Feasibility of time reversal acoustics in diagnostic ultrasound imaging
Won-Suk Ohm
School of Mechanical Engineering, Yonsei University, Seoul, Republic of Korea

11:00 - 12:00
Special session on Nonlinear acoustics applied to evaluation and testing 5

Chairman: to be announced

Listening for nonlinear defects: a new methodology for nonlinear NDE
Special session: Nonlinear material characterization an NDE
Igor Solodov ; Gerd Busse
University of Stuttgart, Stuttgart, Germany

Noncontact diagnostics of rubber-like materials by methods of nonlinear acoustics
Maria Izosimova ; Alexander Korobov ; Kirill Nenarokomov
M.V. Lomonosov Moscow State University, Faculty of Physics, Department of Acoustics, Moscow, Russian Federation

Nonlinear-acoustic damage detection in solid samples: comparison between conventional modulation technique and double-modulation (paper invited for the special session "Nonlinear material characterization and NDE")
Vladimir ZAITSEV [1]; Lev Matveev [1]; Alexander Matveyev [2]
[1]Institute of Applied Physics, Russian Academy of Sciences, Nonlinear wave processes, Nizhny Novgorod, Russian Federation; [2]Institute of Applied Physics, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation

11:00 - 12:00
Devices and industrial applications of nonlinear acoustics 2

Chairman: to be announced

Anharmonic properties of MnO, MnSe and MnS
Kailash Kailash
BNV PG College Rath, Hamirpur, UP, 210431, Physics Department, Rath (Hamirpur), India

Elasto-Plastic Wave Front Propagation In Non-Linear Particle Systems
Muhammad Shoaib
Stockholm, Sweden

The parametric array in berea sandstone, revisted
James TenCate ; Pierre-Yves LeBas
Los Alamos National Laboratory, Geophysics, Los Alamos, NM, United States

11:00 - 12:00
Nonlinear acoustics in fluids 4

Chairman: to be announced

The nonlinear decay of complex acoustical signals and Burgers turbulence
Sergey Gurbatov [1]; Igor Demin [1]; Nickolay Pronchatov-Rubtsov [1]; Bengt Enflo [2]
[1]University of Nizhny Novgorod, Radiophysics, Nizhny Novgorod, Russian Federation; [2]Kungl. Tekniska Hogskolan, Department of Mechanics, Stockholm, Sweden

Experimental investigations of spatial structure of turbulent pressure fluctuations in a wall–bounded turbulent flow
Efim Kudashev
Space Research Institute, Russian Academy of Sciences, Moscow, Russian Federation

Measuring audio-frequency parametric arrays in air formed by radiation from capacitive micromachined ultrasonic transducers
Ira O. Wygant [1]; Mario Kupnik [1]; Jeffrey C. Windsor [2]; Wayne M. Wright [2]; Mark S. Wochner [2]; Goksen G. Yaralioglu [1]; Mark F. Hamilton [2]; Butrus T. Khuri-Yakub [1]
[1]E. L. Ginzton Laboratory, Stanford University, Stanford, CA, United States; [2]Applied Research Laboratories, The University of Texas at Austin, Austin, TX, United States

Plenary session
13:00 - 14:00
Keynote 4

Chairman: to be announced

High intensity focused ultrasound for cancer therapy - harnessing its non-linearity
Gail ter Haar
Joint Physics department, Institute of Cancer Research, Surrey, United Kingdom

Parallel sessions
14:00 - 15:00
Nonlinear acoustics of medicine and biology 3

Chairman: to be announced

Energy deposition from inertial bubble collapses in therapeutic ultrasound
Wayne Kreider ; Michael Bailey ; Lawrence Crum
CIMU, Applied Physics Lab, University of Washington, Seattle, United States

Bubble proliferation in shock wave lithotripsy occurs during inertial collapse
Yuri Pishchalnikov [1]; James McAteer [1]; Irina Pishchalnikova [1]; James Williams [1]; Michael Bailey [2]; Oleg Sapozhnikov [3]
[1]Indiana University School of Medicine, Anatomy and Cell Biology, Indianapolis, United States; [2]University of Washington, Applied Physics Laboratory, Seattle, WA, United States; [3]Moscow State University, Department of Acoustics, Physics Faculty, Moscow, Russian Federation

Nonlinear oscillations of air bubbles near and on a rigid boundary with time delay effects
Edward Payne [1]; Andrew Ooi [1]; Richard Manasseh [2]
[1]University of Melbourne, Mechanical & Manufacturing Engineering, Parkville, Australia; [2]CSIRO, Manufacturing & Materials Technology, Highett, Australia

14:00 - 15:00
Special session on Nonlinear acoustics applied to evaluation and testing 6

Chairman: to be announced

Evaluation of the water content in phenolic resin plates via nonlinear ultrasonic measurements
Jerome Fortineau [1]; François Vander Meulen [2]; Lionel Haumesser [2]; Olivier Bou Matar [3]
[1]ENI Val de Loire-Université François Rabelais de Tours, LUSSI, Blois, France; [2]Université François Rabelais de Tours-ENI Val de Loire, Blois, France; [3]IEMN-DOAE Ecole Centrale de Lille, Villeneuve d'Asq, France

Nonlinear time reversal acoustics for local nonlinearity evaluation of complex media
Serge Dos Santos [1]; Alexander Sutin [2]; Armen Sarvazyan [3]
[1]LUSSI-CNRS, Blois, France; [2]Stevens Institute of Technology, Hoboken, United States; [3]ARTANN Laboratories, Trenton, United States

Application of chaotic cavities to localized nonlinearity imaging with time reversal: A numerical and experimental study
Olivier Bou Matar ; Yifeng Li ; Vladimir Preobrazhensky ; Philippe Pernod
Joint European Laboratory LEMAC, Villeneuve d'ascq, France

14:00 - 15:00
Nonlinear acoustics in solids and structures 1

Chairman: to be announced

Elastic solitons in delaminated bars: splitting leads to fission
Alexander Samsonov [1]; Galina Dreiden [1]; Karima Khusnutdinova [2]; Irina Semenova [1]
[1]The Ioffe Institute of the Russian Academy of Sciences, St.Petersburg, Russian Federation; [2]Loughborough University, Loughborough, United Kingdom

Sound Velocity Dependence on Strain for Damaged Steel
Kristian Haller ; Claes Hedberg
Mechanical Engineering, Karlskrona, Sweden

Microstructural mechanisms of the acoustoplastic effect in crystals
Konstantin Sapozhnikov [1]; Sergey Golyandin [1]; Sergey Kustov [2]
[1]A.F.Ioffe Physical-Technical Institute RAS, St.Petersburg, Russian Federation; [2]Universitat de les Illes Balears, Department de Fisica, Palma de Mallorca, Spain

14:00 - 15:00
Special session on Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 1

Chairman: to be announced

Bubble dynamics - from single bubbles to ensembles
Werner Lauterborn ; Thomas Kurz ; Robert Mettin ; Philipp Koch
University of Goettingen, Third Physical Institute, Goettingen, Germany

The effects of initial mass transfer on bubble contents and cavitation collapse parameters
Charles C Church [1]; D Felipe Gaitan [2]
[1]University of Mississippi, National Center for Physical Acoustics, University, MS, United States; [2]Impulse Devices, Inc., Grass Valley, CA, United States

Parallel session
15:30 - 16:30
Nonlinear acoustics of medicine and biology 4

Chairman: to be announced

Side-by-side calibration of fiber-optic and PVDF hydrophones using a lithotripter shock-wave source
Oleg Sapozhnikov [1]; Yuri Pishchalnikov [2]; Adam Maxwell [3]; Michael Bailey [4]
[1]Moscow State University, Department of Acoustics, Physics Faculty, Moscow, Russian Federation; [2]Indiana University School of Medicine, Department of Anatomy and Cell Biology, Indianapolis, IN, United States; [3]University of Michigan, Department of Biomedical Engineering, Ann Arbor, MI, United States; [4]University of Washington, Applied Physics Laboratory, Seattle, WA, United States

Millisecond initiation of boiling by high intensity focused ultrasound
Michael Canney [1]; Michael Bailey [1]; Vera Khokhlova [2]; Lawrence Crum [1]
[1]University of Washington, Applied Physics Laboratory, Seattle, United States; [2]Moscow State University, Department of Acoustics, Faculty of Physics, Moscow, Russian Federation

Shock wave induced heating in high intensity focused ultrasound medical treatment
Michael R. Bailey [1]; Vera A. Khokhlova [2]; Michael S. Canney [1]; Tatiana D. Khokhlova [3]; Oleg A. Sapozhnikov [2]; Lawrence A. Crum [1]
[1]University of Washington, Center for Industrial and Medical Ultrasound, APL, Seattle, WA, United States; [2]Moscow State University, Department of Acoustics, Faculty of Physics, Moscow, Russian Federation; [3]Moscow State University, Department of Optics, Faculty of Physics, Moscow, Russian Federation

15:30 - 15:50
Special session on Nonlinear acoustics applied to evaluation and testing 7

Chairman: to be announced

Advances in time reversal nonlinear elastic wave spectroscopy (TR NEWS) for application to nonlinear NonDestructive Evaluation, imaging and source complexity
Paul Johnson ; T. J. Ulrich ; Robert Guyer
Los Alamos National Laboratory, United States

15:30 - 16:30
Nonlinear acoustics in solids and structures 2

Chairman: to be announced

Nonlinear interaction of normal elastic waves in anisotropic prismatic waveguide of rectangular cross-section with flexible not extensible coverings on borders.
Alina Kuslivaya ; Valery Storozhev
Donetsk National University, Department of elasticity theory and computational, Donetsk, Ukraine

Three phonon parametrically coupled excitations in solid
Vladimir Preobrazhensky [1]; Vasily Rudenko [2]; Philippe Pernod [3]; Olivier Bou Matar [3]
[1]Joint European Laboratory LEMAC, IEMN ECLille and WRC General Physics Institute RAS, Villeneuve d Ascq, France; [2]Joint European Laboratory LEMAC, IEMN and VI Vernadsky Taurida National University, Simferopol, Ukraine; [3]Joint European Laboratory LEMAC, IEMN DOAE UMR CNRS 8520 Ecole Centrale de Lille, Villeneuve d Ascq Cedex, France

Harmonic burst in inhomogeneous material
Andres Braunbrück
Centre for Nonlinear Studies, Institute of Cybernetics at Tallinn University of Technology, Mechanics and Applied Mathematics, Tallinn, Estonia

15:30 - 16:30
Special session on Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 2

Chairman: to be announced

Nonlinear phenomena of acoustic cloud cavitation
Yoichiro Matsumoto [1]; Shin Yoshizawa [2]; Shu Takagi [3]
[1]The University of Tokyo, Mechanical Engineering, Tokyo, Japan; [2]Tohoku University, Electronics and Communication, Sendai, Japan; [3]RIKEN, Wako, Japan

Computer simulations of cavitation collapses at high static pressure: plasma conditions and shock waves in the liquid
D. Felipe Gaitan ; Robert A. Hiller ; Ross A. Tessien
Impulse Devices, Inc., Grass Valley, CA, United States

Mercury cavitation phenomenon in a pulsed spallation neutron source
Masatoshi Futakawa
Japan Atomic Energy Agency, Materials and Life Science Division, Tokai, Japan

15:50 - 16:30
Nonlinear acoustics applied to evaluation and testing 8

Chairman: to be announced

NDE of the relationship between modulus of elasticity and temperature based on the nonlinear equation of state for industrial materials
Iosif Shkolnik ; Timothy Cameron ; Yaomin Dong
Kettering University, Mechanical Engineering, Flint, MI, United States

Analysis of subharmonic phased array for crack evaluation (SPACE) using elastic-body-oscillator model
Kazushi Yamanaka ; Yoshikazu Ohara ; Setsu Yamamoto ; Hiroaki Endo
Tohoku University, Department of Materials Processing, Sendai, Japan

Parallel sessions
16:30 - 17:30
Nonlinear acoustics of medicine and biology 5

Chairman: to be announced

Parametric excitation of shear waves in soft solids
Mikhail Mironov [1]; Irina Konopatskaja [1]; Pavel Pyatakov [1]; Gregory Clement [2]; Natalya Vykhodtseva [2]
[1]Andreev Acoustics Institute, Moscow, Russian Federation; [2]Harvard Medical School, Brigham and Women's Hospital, Department of Radiology, Boston, United States

Pattern matching of harmonic vibrations in nonlinearly generated acoustic modes in bovine bone sample
Adriano Alippi [1]; Angelo Biagioni [2]; Massimo Germano [2]; Daniele Passeri [2]
[1]University of Rome, Department of Energetics, Rome, Italy; [2]Università di Roma "La Sapienza", Rome, Italy

16:30 - 17:30
Nonlinear acoustics in solids and structures 3

Chairman: to be announced

Impact induced surface wave propagation in concrete massif
Nora Vilchinska
LAA,Latvian Acoustics Association, Riga, Latvia

On nonlinear generalization of the Rayleigh-Love and Bishop theories of longitudinal vibrations of bars
Michael Shatalov
Council for Scientific and Industrial Research (CSIR), Materials Science and Manufacturing, Pretoria, South Africa

A standing acoustic wave with shocks in a cubically nonlinear medium
Bengt Enflo [1]; Claes Hedberg [2]
[1]Royal Institute of Technology (KTH), Mechanics, Stockholm, Sweden; [2]Blekinge Institute of Tec hnology, School of Engineering, Karlskrona

16:30 - 17:30
Special session on Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 3

Chairman: to be announced

Harnessing inertial cavitation for improved cancer treatment by high-intensity focussed ultrasound (HIFU)
Constantin Coussios [1]; Manish Arora [2]; Jamie Collin [2]; Miklos Gyongy [2]; Costas Arvanitis [2]; Emma Cox [2]; Evgenios Kornaropoulos [2]; Sacha Nandlall [2]; Peter Kennedy [2]; Ronald Roy [3]
[1]University of Oxford - Dept of Engineering Science, Institute of Biomedical Engineering, Oxford, United Kingdom; [2]University of Oxford - Dept of Engineering Science, Institute of Biomedical Engineering, Oxford, United Kingdom; [3]Boston University, Dept of Aerospace and Mechanical Engineering, Boston, United States

Non-linear response of ultrasound contrast agents near resonance
Michel Versluis ; Marlies Overvelde ; Jeroen Sijl ; Benjamin Dollet ; Valeria Garbin ; Nico de Jong ; Detlef Lohse
University of Twente, Physics of Fluids Group, Enschede, Netherlands

Sonoluminescence: contemporary view on the mechanism
M. A. Margulis
Andreyev Acoustics Institute, Moscow, Russian Federation

Wednesday, July 9

Plenary session
08:30 - 09:30
Keynote 5

Chairman: to be announced

Analytic Solutions of some Generalized Burgers Equations - An Overview
P.L. Sachdev
University of Delhi, Department of Mathematics, Delhi, India

Parallel sessions
Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 4
09:30 - 10:30

Chairman: to be announced

Transient dynamics of laser-induced bubbles in an ultrasonic field
Thomas Kurz [1]; Laurens Wißmann [1]; Dennis Kröninger [1]; Tobias Wilken [2]; Werner Lauterborn [1]
[1]Universität Göttingen, Drittes Physikalisches Institut, Göttingen, Germany; [2]Max-Planck Institut für Quantenoptik, Garching, Germany

Two thresholds of multibubble cavitation
Nikolai Dezhkunov [1]; Alberto Francescutto [2]; Franco Calligaris [3]; Piero Ciuti [4]; Fabio Sturman [4]
[1]BSUIR, Minsk, Belarus; [2]DINMA, University of Trieste, Trieste, Italy; [3]INFN, National Institute of Nuclear Physics, Trieste, Italy; [4]Universiy of Trieste, Physics, Trieste, Italy

The bubble-bubble interaction under an ultrasonic horn
Kyuichi Yasui ; Yasuo Iida ; Toru Tuziuti ; Teruyuki Kozuka ; Atsuya Towata
National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

09:30 - 10:30
Nonlinear acoustics applied to evaluation and testing 9

Chairman: to be announced

Nonlinearity parameter measurement for polymer plates using focused ultrasound
Shigemi Saito
Tokai University, School of Marine Science and Technology, Shizuoka, Japan

Theoretical and experimental study of nonclassical nonlinear acoustic phenomena in concrete
Xiaozhou Liu [1]; Dao Zhou [1]; Xiufen Gong [1]; Veniamin Nazarov [2]; Li Ma [3]
[1]Institute of Acoustics, Nanjing University, Nanjing, China; [2]Institute of Applied Physics, Russian Academy of Science, Nizhny Novgorod, Russian Federation; [3]Institute of Acoustics, Chinese Academy of Sciences, Beijing, China

Low-frequency spectrum transformation by the propagation of the pulse of elastic R-wave in the artificial medium
Yury Zaslavsky [1]; Evgeny Pachin [2]
[1]Institute of appllied physics RAS, Nizhniy Novgorod, Russian Federation; [2]State Univercity of Nizhniy Novgorod, Nizhniy Novgorod, Russian Federation

09:30 - 10:30
Nonlinear acoustics in solids and structures 4

Chairman: to be announced

Periodic oscillations within the chaotic region in finite piezoelectric structures
Andrea Bettucci [1]; Angelo Biagioni [2]; Annunziata D'Orazio [2]; Daniele Passeri [2]
[1]University of Rome "La Sapienza", Department of Energetics, Rome, Italy; [2]Università di Roma "La Sapienza", Rome, Italy

Nonlinear vibrations of ferroelectric bimorph cantilever
Igor Ostrovskii [1]; Andriy Nadtochiy [2]
[1]The University of Mississippi in Oxford, Physics and Astronomy, Oxford, United States; [2]The University of Mississippi in Oxford, Oxford, United States

Nonlinear torsional wave beams
Mark S. Wochner ; Mark F. Hamilton ; Yurii A. Ilinskii ; Evgenia A. Zabolotskaya
Applied Research Laboratories, The University of Texas at Austin, Austin, TX, United States

Parallel sessions
11:00 - 12:00
Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 5

Chairman: to be announced

Hopf Bifurcation in Acoustically Excited Faraday Ripples on a Bubble Wall
Alexey Maksimov [1]; Koen Winkels [2]; Timothy Leighton [3]; Peter Birkin [4]
[1]V.I.Il'ichev Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russian Federation; [2]University of Twente, Faculty of Science and Technology, Enschede, Netherlands; [3]University of Southampton, Institute of Sound and Vibration Research, Southampton, United Kingdom; [4]University of Southampton, School of Chemistry, Southampton, United Kingdom

Calculation of light emission in sonoluminescence
Zhaohui Li ; Yu An
Tsinghua University, Physics, Beijing, China

High-intensity Na* emission during multibubble sonoluminescence in sulfuric acid
Shin-ichi Hatanaka [1]; Shigeo Hayashi [1]; Shogo Abe [2]; Pak-Kon Choi [2]
[1]The University of Electro-Communications, Dept. of Applied Physics and Chemistry, Tokyo, Japan; [2]Meiji University, Dept. of Physics, School of Science and Technology, Tokyo, Japan

11:00 - 12:00
Nonlinear acoustics applied to evaluation and testing 10

Chairman: to be announced

Amplitude dependence of the parametric interaction components inside the retrofocusing area with Nonlinear Time Reversal Acoustics
Thomas Goursolle [1]; Samuel Calle [2]; Olivier Bou Matar [3]; Serge Dos Santos [1]
[1]LUSSI-ENIVL, Blois, France; [2]LUSSI - Université Francois Rabelais de Tours, Tours, France; [3]LEMAC / IEMN, Ecole Centrale de Lille, Villeneuve d'Asq, France

A resonance frequency shift in spectral analysis of the impact echo
Karel Hajek [1]; Josef Sikula [2]
[1]University of Defence Brno, Electrical Engineering, Brno, Czech Republic; [2]FEKT, BUT Brno, Dpt. of Physic, Brno, Czech Republic

Nonlinear acoustic landmine detection
Dimitri M. Donskoy
Stevens Institute of Technology, Hoboken, United States

11:00 - 12:00
Nonlinear acoustics in solids and structures 5

Chairman: to be announced

Subharmonics spectra of acoustics excitation in granular medium
Igor Esipov [1]; Andrey Vilman [2]; Andrey Fokin [2]
[1]Gubkin Oil@Gas University/N. Andreyev Acoustics institute, Moscow, Russian Federation;
[2]N.N.Andreev Acoustics Institute, Moscow, Russian Federation

Ultrasound Impulse propagation in sand specimen under load
Nora Vilchinska ; Nora Vilchinska
LAA,Latvian Acoustics Association, Riga, Latvia

Nonlinear evolution equations for degenerate transverse waves in elastic solids
W³odzimierz Domañski [1]; Andrew N. Norris [2]
[1]Polish Academy of Sciences, Institute of Fundamental Technological Research, Warsaw, Poland;
[2]Rutgers University, Department of Mechanical and Aerospace Engineering, Piscataway, United States

Plenary session
13:00 - 14:00
Keynote 6

Chairman: to be announced

Laser-based nonlinear surface acoustic waves: From solitary to bond- breaking shock waves
Peter Hess ; Alexey M. Lomonosov ; Victor V. Kozhushko
University of Heidelberg, Physical Chemistry, Heidelberg, Germany

Parallel sessions
14:00 - 15:00
Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 6

Chairman: to be announced

Collision broadening of line spectrum in sonoluminescence
Zhaohui Li ; Yu An
Tsinghua University, Physics, Beijing, China

Model for the interaction between a gas bubble and an elastic particle
Todd A. Hay ; Mark F. Hamilton ; Yurii A. Ilinskii ; Evgenia A. Zabolotskaya
Applied Research Laboratories, The University of Texas at Austin, Austin, TX, United States

Ultrasonic shock waves for the acoustical spectroscopy of suspensions of nano-particles
Jean-Louis Thomas [1]; Michael Baudoin [2]; Jean-Louis Thomas [3]; Francois Coulouvrat [4]; Corinne Chanéac [5]
[1]CNRS, Institut des Nanosciences de Paris, Paris, France; [2]UPMC Univ Paris 06,Institut Jean Le Rond d'Alembert (IJLRDA), Institut des NanoSciences de Paris (INSP) 4, Paris, France; [3]UPMC Univ Paris 06, Institut des NanoSciences de Paris (INSP), Paris, France; [4]UPMC Univ Paris 06,

Institut Jean Le Rond d'Alembert (IJLRDA) 4, Paris, France; [5]Université Pierre et Marie Curie-Paris6, CNRS, UMR 7574, LCMC, Paris, France

14:00 - 15:00
Nonlinear acoustics in fluids 5

Chairman: to be announced

The influence of vibrational energy relaxation on laminar-turbulent transition
Igor Zavershinskii ; Vladislav Knestyapin ; Efim Kogan
Samara State Aerospace University, Institute of Fundamental Sciences, Samara, Russian Federation

Numerical simulation of nonlinear resonant gas oscillations in an elliptical cylinder
Eru Kurihara
Hokkaido University, Graduate School of Engineering, Sapporo, Japan

Resonant gas oscillation of cylindrical wave between non-uniformly heated coaxial cylinders
Takeru Yano
Hokkaido University, Division of Mechanical and Space Engineering, Sapporo, Japan

14:00 - 15:00
Nonlinear acoustics in solids and structures 6

Chairman: to be announced

NDT of conducting solids by Electro-Ultrasonic spectroscopy
Josef Sikula [1]; Karel Hajek [2]; Vlasta Sedlakova [1]; Pavel Tofel [1]; Hana Navarova [1]; Jiri Majzner [1]
[1]Brno University of Technology, Physics, Brno, Czech Republic; [2]University of Defence, Electronics, Brno, Czech Republic

Amplitude-dependent internal friction and generation of harmonics in granite resonator
Andrey Kolpakov [1]; Veniamin Nazarov [2]; Andrey Radostin [2]
[1]Institute of Applied Physics, Nizhny Novgorod, Russian Federation; [2]Applyed Physics, Nizhny Novgorod, Russian Federation

Propagation of unipolar strain pulses in media with hysteretic nonlinearity and linear dissipation
Veniamin Nazarov [1]; Andrey Radostin [2]
[1]IAP RAS, Hydrophisics, Nizhnii Novgorod, Russian Federation; [2]IAP RAS, Hydrophysics, Nizhnii Novgorod, Russian Federation

Parallel sessions
15:30 - 16:30
Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 7

Chairman: to be announced

Effect of frequency on sonoluminescence spectrum from alkali-metal solutions
Pak-Kon Choi ; Shogo Abe
Meiji University, Department of Physics, Kawasaki, Japan

Cavitation development in a viscous compressed magma at explosive eruption of volcanoes
Valery Kedrinskii ; Maxim Davydov
Lavrentyev Institute of Hydrodynamics, Lab of multi-phase media mechanics, Novosibirsk, Russian Federation

The effect of hydrostatic pressure and temperature on sonoluminescence of metal atoms from aqueous salt solutions
Tatyana V. Gordeychuk ; Mikhail V. Kazachek
V.I. Il'ichev Pacific Oceanological Institute of FEBRAS, Vladivostok, Russian Federation

15:30 - 16:10
Nonlinear acoustics in fluids 6

Chairman: to be announced

Pattern formation and localized structures in acoustic resonator containing viscous medium.
Isabel Perez-Arjona [1]; Victor J. Sanchez-Morcillo [1]; German J. de Valcarcel [2]; Victor Espinosa [3]; Joan Martinez-Mora [3]
[1]Universitat Politecnica de Valencia, Institut de Gestio Integrada de Zones Costaneres, Grau de Gandia, Spain; [2]Universitat de Valencia, Valencia, Spain; [3]Universitat Politecnica de Valencia, Grau de Gandia, Spain

Acoustic manipulation in air using a standing wave field
Teruyuki Kozuka ; Kyuichi Yasui ; Toru Tuziuti ; Atsuya Towata ; Yasuo Iida
National Institute of Advanced Industrial Science and Technology (AIST), Advanced Manufacturing Research Institute, Nagoya, Japan

Nonlinear acoustics and optics 1
15:30 - 16:30

Chairman: to be announced

Nonlinear Elastic Response of Water in Laser-induced Generation of Focused Ultrasound
Peter Hess ; Victor V. Kozhushko
University of Heidelberg, Physical Chemistry, Heidelberg, Germany

The resolution provided by focused transducers in optoacoustic tomography
Tatiana Khokhlova ; Ivan Pelivanov ; Alexander Karabutov
Moscow State University, International Laser Center, Moscow, Russian Federation

Thursday, July 10

Plenary session
08:30 - 09:30
Keynote 7

Chairman: to be announced

Merging nonlinear acoustics and nonlinear optics : laser generated intense acoustic pulses and breakdown in dielectrics
Christos Flytzanis
Ecole Normale Superieure, Laboratoire Pierre Aigrain, Paris, France

Parallel sessions
09:30 - 10:30
Nonlinear acoustics in porous and multiphase media, and cavitation phenomena 8

Chairman: to be announced

Features of linear and nonlinear acoustic characteristics of crystallizing liquids
Vladimir Bulanov
Pacific Oceanological Institute, Vladivostok, Russian Federation

Dynamics of gas and liquid in acoustically cavitated fluid
Igor Mastikhin ; Benedict Newling
University of New Brunswick, Physics, Fredericton, Canada

09:30 - 10:30
Nonlinear acoustics in fluids 7

Chairman: to be announced

Turbulence-induced acoustic emission of SCUBA breathing apparatus
Dimitri Donskoy ; Len Imas ; Timothy Yen ; Nikolay Sedunov ; Michael Tsionskiy ; Alexander Sedunov
Stevens Institute of Technology, Hoboken, United States

Buzz-Saw noise : propagation of shock waves in aero-engine inlet ducts
Rasika Fernando [1]; Regis Marchiano [2]; Francois Coulouvrat [2]; Yann Druon [1]
[1]Airbus France, EEA3, Toulouse, France; [2]Institut Jean le Rond d'Alembert, Paris, France

Hamiltonian systems with continuous energy spectrum and chaotic oscillations of a rotating ideal fluid
Mikhail Fokin
Sobolev Institute of Mathematics, Novosibirsk, Russian Federation

09:30 - 10:30
Nonlinear acoustics in solids and structures 7

Chairman: to be announced

Measurements of nonlinear shear elastic moduli in quasi-incompressible soft solids
Mathieu Rénier ; Jean-Luc Gennisson ; Christophe Barrière ; Stefan Catheline ; Mickael Tanter ; Daniel Royer ; Mathias Fink
Laboratoire Ondes et Acoustique Université Paris 7-Denis Diderot CNRS UMR 7587, Paris, France

Nonlinear characterization of piezoelectric samples using crossed (electrical/acoustical) measurements
Denis Parenthoine [1]; Lionel Haumesser [1]; François Vander Meulen [1]; Louis Pascal Tran-Huu-Hue [1]; Marc Lethiecq [2]
[1]LUSSI, University françois rabelais de Tours, BLois, France; [2]LUSSI, Université François Rabelais de Tours, 41000, Blois, France

The nonlinear processes in active vibroseismic monitoring
Marat Khairetdinov ; Gulnara Voskoboynikova
Institute of Computational Mathematics and Mathematical Geophysics SB RAS, Geophysical Informatics, Novosibirsk, Russian Federation

Parallel sessions
10:30 - 11:30
Nonlinear acoustics in fluids 8

Chairman: to be announced

Water surface wave in an annular trough with periodic topographical bottom under vertical vibration
Yi Hu ; Guoqing Miao
Nanjing University, Institute of Acoustics, Nanjing, China

Nonlinear acoustics of phase conjugate waves in moving liquid
Vladimir Preobrazhensky [1]; Philippe Pernod [2]; Yuri Pylnov [3]; Nikolay Smagin [3]
[1]Joint European Laboratory LEMAC, IEMN EC Lille & WRC General Physics Institute RAS, Villeneuve d Ascq, France; [2]Joint European Laboratory LEMAC, IEMN DOAE UMR CNRS 8520 Ecole Centrale de Lille, Villeneuve d Ascq Cedex, France; [3]Joint European Laboratory LEMAC, MIREA and IEMN EC Lille, Moscow, Russian Federation

10:30 - 10:50
Nonlinear acoustics in solids and structures 8

Chairman: to be announced

Review of phononic crystals, nonlinear processes, devices and prospects
Sergey Nikitov ; Yury Gulyaev ; Alex Grigorievskii ; Valery Grigorievskii ; Ivan Lisenkov ; Roman Popov
Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation

Plenary session
12:00 - 12:30
Keynote 8

Chairman: to be announced

Lev Ostrovsky
Zel Technologies/NOAA ESRL, and University of Colorado at Boulder, Boulder, United States

Poster session
All posters are displayed throughout the conference.

Parametric sound fields by phase-cancellation excitation of primary waves
Masahiko Akiyama [1]; Tomoo Kamakura [2]; Claes Hedberg [3]
[1]TOKIMEC.INC, OTA-KU, Japan; [2]The University of Electro-Communications, Department of Electronics, Chofu-shi, Japan; [3]Blekinge Institute of Technology, School of Engineering, Karlskrona, Sweden

Analysis of nonlinear wave processes in an elastic resonator
Michal Bednarik ; Milan Cervenka ; Petr Konicek
Czech Technical University in Prague-FEE, Physics, Prague, Czech Republic

Damage detection by nonlinear material characterization: Analysis of resonant flexural vibrations
Ignacio Tinao Perez Miravete ; Cleofé Campos-Pozuelo
CSIC, Instituto de Acústica, Madrid, Spain

Adaptive algorithm for active control of high-amplitude acoustic field in resonator
Milan Cervenka ; Michal Bednarik ; Petr Konicek
CTU in Prague, FEE, Dept. of Physics, Prague 6, Czech Republic

The use spectral and bispectral analysis for diagnosis of nonlinear dissipative medium
Sergei Gurbatov ; Igor Demin ; Nikolai Pronchatov-Rubtsov ; Aleksandr Ryabov
Nizhny Novgorod State University, Acoustics, Radiophysics Faculty, Nizhny Novgorod, Russian Federation

Diffraction and nonlinear effects influence on harmonics generation processes in high-intensity acoustic beams
Vasily Kurin [1]; Irina Gryaznova [1]; Sergey Gurbatov [1]; Mikhail Deriabin [2]; Evgeny Storozhev [1]; Dmitry Kasiyanov [2]
[1]State University of Nizhny Novgorod, Acoustics, Nizhny Novgorod, Russian Federation; [2]Radiophysical Research Institute, Nizhny Novgorod, Russian Federation

Finite amplitude standing waves in the cavity of the acoustical resonator
Petr Konicek ; Michal Bednarik ; Milan Cervenka
CTU FEE Prague, Prague, Czech Republic

Experimental research of Gruneisen parameter of fullerite C60 single crystal near structural phase transition at 260 K using photoacoustic technique
Aleksandr Korobov [1]; Natalya Odina [1]; Mikhail Chukichev [1]; Vladimir Chegnov [2]
[1]M.V. Lomonosov Moscow State University, Department of Acoustics, Faculty of Physics, Moscow, Russian Federation; [2]Scientific Center, Zelenograd, Russian Federation

On the suppression of sonochemiluminescence reduction at high acoustic amplitudes by the addition of particles
Toru Tuziuti ; Teruyuki Kozuka ; Kyuichi Yasui ; Atsuya Towata ; Yasuo Iida
National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

Acoustic radiation force on a fluid sphere in standing zero-order bessel beam tweezers
Farid G. Mitri
Mayo Clinic, Physiology and Biomedical Engineering, Rochester, United States

Hysteresis in acoustical media with relaxational nonlinearity and viscosity
Ivan Molotkov
IZMIRAN, Theoretical Physics, Troitsk, Russian Federation

Ultrasonic detection of nonlinear vibration caused by a closed crack
Toshihiko Sugiura ; Tamaki Ishikawa ; Keiichi Naitou
Keio University, Mechanical Engineering, Yokohama, Japan

Numerical study of the resonant pressure field inside a forced rigid cavity filled with a homogeneous bubbly liquid
Mason Yonekura [1]; Christian Vanhille [2]
[1]CSIC/URJC, Móstoles, Madrid, Spain; [2]URJC, Móstoles, Madrid, Spain