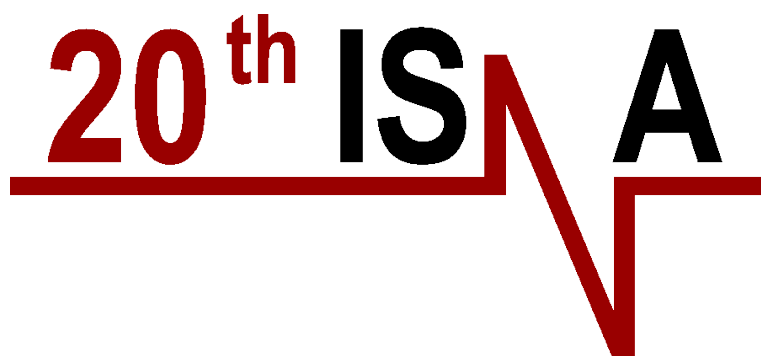

20th International Symposium on Nonlinear Acoustics

2nd International Sonic Boom Forum

BOOKLET OF THE CONFERENCE



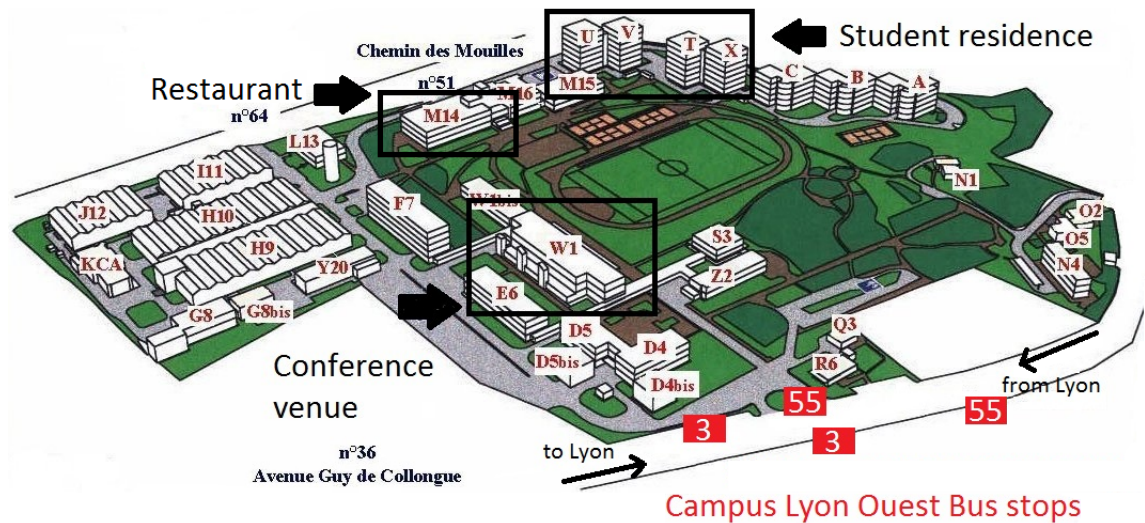
LYON, FRANCE - JUNE 29, JULY 3



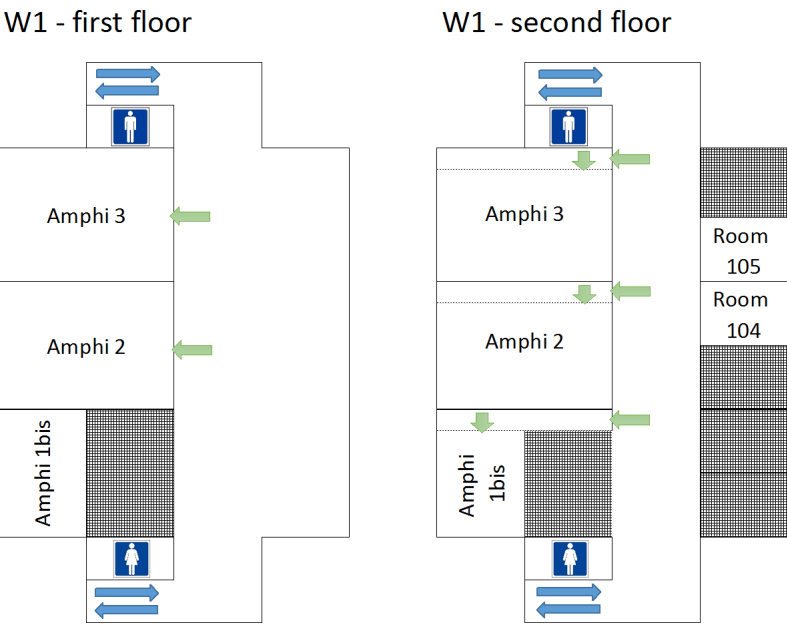
ÉCOLE
CENTRALE LYON

Practical informations

Map of the ECL campus



Floormap



Please note that you can access Amphi 1bis only from the 2nd floor.

The rooms 104 and 105 are freely accessible to participants of ISNA 20.

Program of the conference

Monday 29 June		Tuesday 30 June		Wednesday 1 July		Thursday 2 July		Friday 3 July	
09:00 -		09:00 -	Technical sessions	09:00 -	Technical sessions	09:00 -	Technical sessions	09:00 -	Plenary lecture 6: P. Coen
10:20		10:20		10:20		10:20		10:00	
11:00		11:00	Coffee break	11:00	Coffee break	11:00	Coffee break	10:20	Technical session
13:00		11:00	Plenary lecture 2: V. Tournat	11:00	Plenary lecture 3: R. Mettin	11:00	Plenary lecture 5: D. Drob	11:00	Technical session
-		-		-		-		11:40	
12:00		12:00		12:00		12:00		11:40	Sonic Boom Industry Panel
			Lunch		Lunch		Lunch		Lunch
13:00		12:00		12:00		12:00		12:30	
-		-		-		-		12:30	
14:50	Registration	13:40		13:40		13:40		14:00	
		13:40	Technical sessions	13:40	Technical sessions	13:40	Technical sessions		
14:50		-		-		-		14:00	
15:10	Welcome and opening ceremony	15:00		15:00		15:00		16:00	Q and A with Concorde/Air France Experts
15:10	Plenary lecture 1: R. Cleveland	15:00	Coffee break / Poster session	15:00	Coffee break	15:00	Coffee break	-	
-		-		15:30	Plenary lecture 4: I. Solodov	15:40	Technical sessions	16:00	
16:10		16:00		16:30		16:40		16:00	Concluding remarks
			Technical sessions		Technical sessions		Closing ceremony		
16:20		16:00		16:40		17:00			
-		-		-		17:20			
18:00	Technical sessions	18:00		18:00		20:00	Time off		
18:00						20:00			
-						-			
20:00	Welcome reception					23:00	Dinner cruise		

Scientific program

Monday 29 June				Tuesday 30 June				Wednesday 1 July				Thursday 2 July				Friday 3 July			
	Amphi 1 bis	Amphi 2	Amphi 3		Amphi 1 bis	Amphi 2	Amphi 3		Amphi 1 bis	Amphi 2	Amphi 3		Amphi 1 bis	Amphi 2	Amphi 3			Amphi 3	
14:50 - 15:10		Welcome and opening ceremony			Computational methods 3	Imaging and tissue characterization 2	Nonlinear propagation in heterogeneous media 1			Nonlinear propagation in fluids 1	Solids and soft matter		09:00 - 10:00					Plenary lecture 6 : Coen	
15:10 - 16:10			Plenary lecture 1: Cleveland																
16:20 - 18:00	General nonlinear acoustics 1	Therapeutic applications 1	Thermo-acoustics 1							Plenary lecture 5: Drob			11:00 - 12:00						Perception of sonic boom
																			Coffee break
																			Perception of sonic boom
																			Perception of sonic boom
																			Sonic Boom Industry Panel

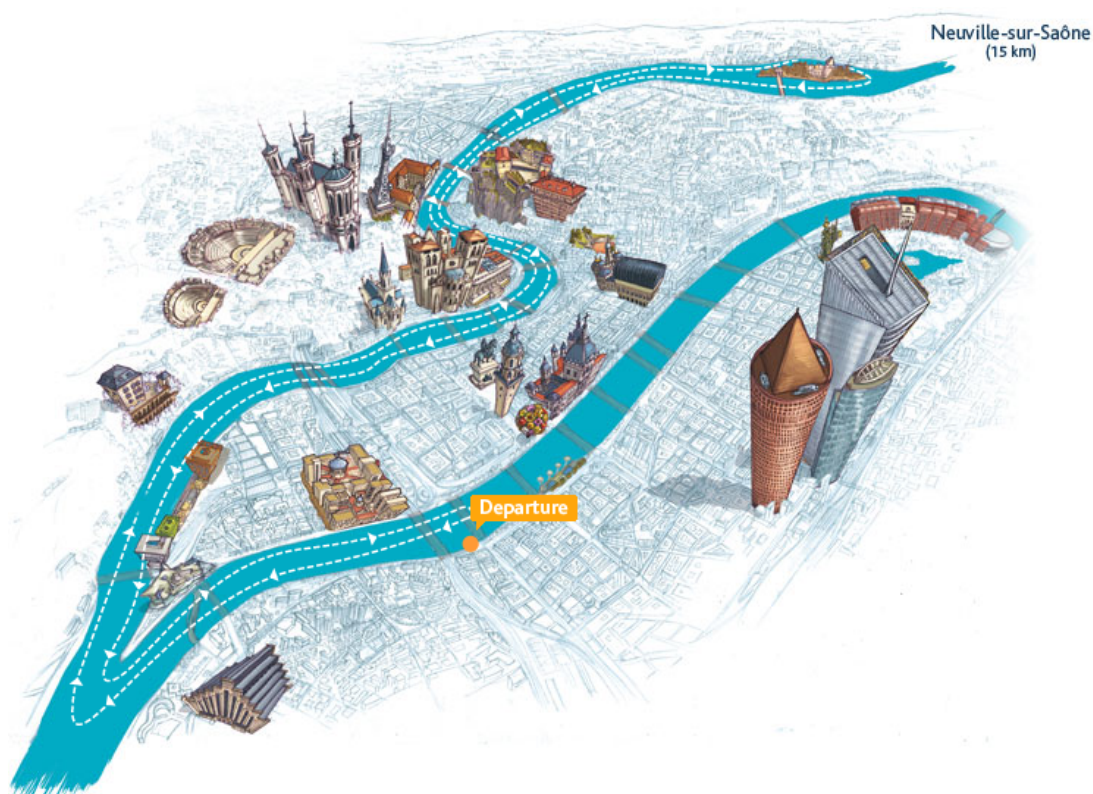
Dinner cruise

The dinner cruise will take place on the evening of the 2nd of July on the boat *Hermès* of LyonCityBoat. The departure and arrival are at 16, Quay Claude Bernard - Lyon 7e, on the left bank of the Rhône River, close to the University Bridge. You can get there:

- from Perrache station: by tramway T1, direction IUT Feyssine, stop Quai Claude Bernard (around 5 minutes)
- from Part-Dieu station: by tramway T1, direction Debourg, stop Quai Claude Bernard (around 10 minutes)
- from Ecole Centrale de Lyon: bus 55 to Perrache station then tramway T1, direction IUT Feyssine, stop Quai Claude Bernard (around 40 minutes)
- from Lyon downtown: metro D, stop Guillotière then tramway T1, direction Debourg, stop Quai Claude Bernard or 15 minutes-walk from stop Guillotière

The boarding time is 8:00 PM and the arrival time is 11:15 PM.

For those returning near Ecole Centrale de Lyon after the dinner cruise, the only available public transportation is bus 3, which is leaving from Gorge de Loup at 11:37 PM and at 00:40 AM. The best option is to book a taxi with colleagues (Taxi Lyonnais: +33 4 78 26 81 81, Allo Taxi: +33 4 78 28 23 33 or Taxi Lyon: +33 4 72 10 86 86).



Committees

International Organizing Committee:

M. F. Hamilton (USA), General Secretary
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Ph. Blanc-Benon (France)
L. A. Crum (USA)
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K. A. Naugolnykh (USA/Russia)
L. A. Ostrovsky (USA/Russia)
O. A. Sapozhnikov (Russia)
I. Yu. Solodov (Germany/Russia)
T. Yano (Japan)

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I. Yu. Solodov (Germany/Russia)
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B. Treeby (England)
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E. Salze (LMFA/ECL)
A. Seck (LMFA/ECL)
R. Troian (LMFA/ECL)
C. Zambardi (CeLyA/UDL)

List of sessions

Monday 29 june, 2015 - Plenary lecture 1: Robin Cleveland

Amphi 2

Chair Person: M. Hamilton

- 15:10 Nonlinear acoustics in biomedical ultrasound
R. Cleveland

Monday 29 june, 2015 - General nonlinear acoustics 1

Amphi 1 bis

Chair Person: V. Tournat

- 16:20 Standing Shear Waves in Anisotropic Viscoelastic Media
T. Krit, I. Golubkova and V. Andreev
- 16:40 Second-Harmonic Generation in Shear Wave Beams with Different Polarizations
K. Spratt, Y. Ilinskii, E. Zabolotskaya and M. Hamilton
- 17:00 Effect of Nanostructuring on the Elastic Properties of Aluminum Alloy AMg6.
V. Prokhorov, A. Korobov, A. Kokshaiskii, S. Perfilov and A. Volkov
- 17:20 Application of Weak Shock Theory to Transient Plane Shear Waves
J. Cormack and M. Hamilton

Monday 29 june, 2015 - Therapeutic applications 1

Amphi 2

Chair Persons: V. Khokhlova and C. Lafon

- 16:20 Histotripsy: Nonlinearities Essential for Therapeutic Lesion Formation
C. Cain
- 17:00 Use of Shock-Wave Heating for Faster and Safer Ablation of Tissue Volumes in High Intensity Focused Ultrasound Therapy
V. Khokhlova, P. Yuldashev, I. Sinilshchikov, A. Partanen, T. Khokhlova, N. Farr, W. Kreider, A. Maxwell and O. Sapozhnikov
- 17:20 Nonlinear effects in ultrasound fields of diagnostic-type transducers used for kidney stone propulsion: characterization in water and derating to clinically relevant depth in tissue
M. Karzova, B. Cunitz, P. Yuldashev, Y. Andriyakhina, W. Kreider, O. Sapozhnikov, M. Bailey and V. Khokhlova
- 17:40 Quantitative Assessment of Reactive Oxygen Species Generation by Cavitation Incepted Efficiently Using Nonlinear Propagation Effect
Y. Jun, S. Yoshizawa and S.-I. Umemura

Monday 29 june, 2015 - Thermoacoustics 1

Amphi 3

Chair Person: A. Atchley

- 16:20 Nonlinear Diffusion-Wave Equation for a Gas in a Regenerator Subject to Temperature Gradient
N. Sugimoto
- 16:40 Magnetoacoustic Nonlinear Waves in a Heat-Releasing Plasma
D. Ryashchikov, N. Molevich and D. Zavershinskiy
- 17:00 Lagrangian description of energy conversion in the Taconis oscillations
K. Ishii, S. Adachi, H. Hayashi and I. Menshov

- 17:20 Experiments on the acoustic solitary wave generated thermoacoustically in a looped tube**
D. Shimizu and N. Sugimoto
- 17:40 Acoustic Agglomeration of Fine Particles Based on a High Intensity Acoustical Resonator**
Y. Zhao, X. Zeng and Z. Tian

Tuesday 30 june, 2015 - Computational methods in Nonlinear Acoustics 1

Amphi 1 bis

Chair Person: B. Treeby and P. Yuldashev

- 9:00 Three dimensional full-wave nonlinear acoustic simulations: applications to ultrasound imaging**
G. Pinton
- 9:20 Numerical Modelling of Nonlinear Full-Wave Acoustic Propagation**
P.L. Rendón and R. Velasco
- 9:40 GPU Simulation of Nonlinear Propagation of Dual Band Ultrasound Pulse Complexes**
J. Kvam, B. Angelsen and A. Elster
- 10:00 Simulation of Nonlinear Ultrasound Wave Propagation in Fourier Domain**
F. Varray, O. Basset and C. Cachard

Tuesday 30 june, 2015 - Therapeutic applications 2

Amphi 2

Chair Persons: C. Lafon and S.I. Umemura

- 9:00 Enhancement of Cavitation Inception by Second-harmonic Superimposition for Focused Ultrasound Treatment**
S.-I. Umemura, S. Yoshizawa, R. Takagi and J. Yasuda
- 9:40 Numerical Study of a Confocal Ultrasonic Setup for Creation of Cavitation**
M. Lafond, F. Chavrier, F. Prieur, J.-L. Mestas and C. Lafon
- 10:00 Enhanced focus steering abilities of multi-element therapeutic arrays operating in nonlinear regimes**
P. Yuldashev, S. Ilyin, L. Gavrilov, O. Sapozhnikov, W. Kreider and V. Khokhlova

Tuesday 30 june, 2015 - Thermoacoustics 2

Amphi 3

Chair Person: G. Penelet

- 9:00 Analogy between the One-dimensional Acoustic Waveguide and the Electrical Transmission Line in the Cases of Nonlinearity and Relaxation**
D. Yang, H. Zhang, S. Shi, J. Shi, D. Li and B. Hu
- 9:20 Suppression of Oscillations in a Coupled Thermoacoustic Oscillators**
T. Biwa
- 9:40 Theoretical Study of a Thermo-acousto-electric Engine equipped with an Electroacoustic Feedback Loop**
C. Olivier, G. Penelet, G. Poignand and P. Lotton
- 10:00 Evolution equation of subcritical Hopf bifurcation in thermoacoustic oscillations**
H. Hyodo and T. Biwa

Tuesday 30 june, 2015 - Plenary lecture 2: Vincent Tournat

Amphi 2

Chair Person: V. Khokhlova

- 11:00 Nonlinear acoustic wave processes in granular media**
V. Tournat

Tuesday 30 june, 2015 - General nonlinear acoustics 2

Amphi 1 bis

Chair Person: O. Bou Matar

- 13:40 Fatigue Crack Detection based on Change of Linear Ultrasonic Features caused by Structural Nonlinearity**
H.J. Lim and H. Sohn
- 14:00 Finite Element Modeling of the Non Collinear Mixing Method for Detection and Characterization of Closed Cracks**
A. Meziane and P. Blanloeuil
- 14:20 Numerical and Experimental Analysis of harmonic generation method for detection of closed cracks**
A. Saidoun, A. Meziane, M. Rénier, F. Zhang and H. Walaszek
- 14:40 Nonlinear Ultrasonic Imaging of Thermal Fatigue Cracks of Several Tens nm Gap in Glass Plates**
M. Hertl, K. Kawashima, K. Sekino, H. Yasui and T. Aida

Tuesday 30 june, 2015 - Radiation force in biology and medicine

Amphi 2

Chair Persons: C. Lafon and O. Sapozhnikov

- 13:40 Nonlinear Aspects of Acoustic Radiation Force in Biomedical Applications**
L. Ostrovsky and A. Sarvazyan
- 14:00 Effect of particle-particle interactions on the acoustic radiation force in an ultrasonic standing wave**
B. Lipkens, Y. Ilinskii and E. Zabolotskaya
- 14:20 Acoustic Radiation Force due to Arbitrary Incident Fields on Spherical Particles in Soft Tissue**
B. Treweek, Y. Ilinskii, E. Zabolotskaya and M. Hamilton
- 14:40 Experimental Study of Acoustic Radiation Force of an Ultrasound Beam on Absorbing and Scattering Objects**
A. Nikolaeva, M. Kryzhanovskiy, S. Tsysar, W. Kreider and O. Sapozhnikov

Tuesday 30 june, 2015 - Thermoacoustics 3

Amphi 3

Chair Person: T. Biwa

- 13:40 Oscillating viscous boundary layer at high Reynolds number : Experiments and numerical calculations**
I. Rey, H. Bailliet, E. Foucault and J.-C. Valière
- 14:00 Measurements of acoustic minor loss in a tube with geometrical irregularities**
Y. Ueda, S. Yonemitsu and T. Saito
- 14:20 LDV measurements of Rayleigh streaming in narrow channels**
R. Bessis, H. Bailliet, I. Rey and J.-C. Valière
- 14:40 New Method to Increase the Energy Conversion Efficiency of Thermoacoustic Engine.**
A. Kido, S.-I. Sakamoto, K. Taga and Y. Watanabe

Tuesday 30 june, 2015 - Poster session - 15:00

Velocity Measurement Method to Control the Coagulation Enzymatic

M. Derra, A. Amghar and H. Sahsah

Acoustic field distribution of sawtooth wave with nonlinear SBE model

X. Liu, L. Zhang, X. Wang and X. Gong

Acoustic analysis of voices from students with speech disorders

B. Sabir

Cavitation Activity Enhancement by Nanoparticles in Sonodynamic Therapy of Melanoma B16

A. Nikolaev, A. Gopin, N. Andronova, N. Dezhkunov and E. Treshalina

Axial acoustic radiation force on a sphere in a Gaussian beam

R. Wu, X. Liu and X. Gong

Sound beam manipulation based on temperature gradients

F. Qian, L. Quan, X. Liu and X. Gong

Acoustic Characteristics of the Medium with Gradient Change of Impedance

B. Hu, D. Yang, Y. Sun, J. Shi, S. Shi and H. Zhang

Elastic Waves in a Wedge of Aluminum Alloy with Permanent Residual Deformations

A. Korobov, M. Izosimova and A. Kokshaiskii

Influence of a low flow rate on an acoustic cavitation bubble cloud

A. Seck, C. Inserra, S. Ollivier, J.-C. Béra and P. Blanc-Benon

Flow Velocity Measurement with the Nonlinear Acoustic Wave Scattering

I. Didenkulov and N. Pronchatov-Rubtsov

Experimental Nonlinearity in Soft Crystals

N. Vilchinska

Nonlinear Interaction of Air Bubbles and Ultrasonic Field: an Analysis of some Physical Aspects

C. Vanhille and C. Campos-Pozuelo

Laser velocimetry for non-linear acoustics : an overview over two decades of research

J.-C. Valière and H. Bailliet

Tuesday 30 june, 2015 - General nonlinear acoustics 3

Amphi 1 bis

Chair Person: B. Lipkens

16:00 Acoustic Streaming Jets: a Scaling and Dimensional Analysis.

V. Botton, B. Moudjed, D. Henry, S. Millet, H. Ben Hadid and J.-P. Garandet

16:20 Inertial effects on non linear acoustic streaming

V. Daru, D. Baltean-Carlès and C. Weisman

16:40 Control of droplet temperature on disposable digital microfluidic system based on acoustic streaming

J. Kondoh and N. Ohashi

17:00 Tunable Optical Lens Array Using Viscoelastic Material and Acoustic Radiation Force

D. Koyama, Y. Kashiara, M. Hatanaka, K. Nakamura and M. Matsukawa

17:20 Pitch Glide Effect Induced by a Nonlinear String-Barrier Interaction

D. Kartofelev, A. Stulov and V. Välimäki

Tuesday 30 june, 2015 - Imaging and tissue characterization 1

Amphi 2

Chair Persons: M. Verweij and V. Khokhlova

- 16:00 Implications of Superharmonic Ultrasound Contrast Agent Imaging**
M. Verweij, D. Peruzzini, P. Tortoli, N. De Jong and H. Vos
- 16:20 Cumulative Phase Delay Imaging - a new contrast enhanced ultrasound modality**
L. Demi, R.J.G. Van Sloun, H. Wijkstra and M. Mischi
- 16:40 Experimental Study of Transmission of a Pulsed Focused Beam through a Skull Phantom in Nonlinear Regime**
S. Tsysar, A. Nikolaeva, V. Svet, V. Khokhlova, P. Yuldashev and O. Sapozhnikov
- 17:00 Simulation of nonlinear propagation of biomedical ultrasound using PZFlex and the KZK Texas code**
S. Qiao, E. Jackson and R. Cleveland
- 17:20 Ultrasound Tissue Characterization: Comparison of Statistical Results using Fundamental and Harmonic Signals**
F. Lin, A. Cristea, C. Cachard and O. Basset

Tuesday 30 june, 2015 - Computational methods in Nonlinear Acoustics 2

Amphi 3

Chair Persons: B. Treeby and P. Yuldashev

- 16:00 The development of a hybrid finite difference solution of the Westervelt equation using the Fast Nearfield Method as a boundary condition for focused sources**
K. Bader and C. Holland
- 16:20 A boundary condition to the Khokhlov-Zabolotskaya equation for modeling strongly focused nonlinear ultrasound fields**
P. Rosnitskiy, P. Yuldashev and V. Khokhlova
- 16:40 Acoustic characterization of high intensity focused ultrasound fields generated from a transmitter with a large aperture**
D. Zhang and T. Fan
- 17:00 Experimental Validation of Computational Models for Large-scale Nonlinear Ultrasound Simulations in Heterogeneous, Absorbing Fluid Media**
E. Martin, J. Jaros and B. Treeby
- 17:20 A robust time-base transformation scheme for computing waveform deformation during nonlinear propagation of ultrasound**
B. De Graaf, S.B. Raghunathan and M.D. Verweij
- 17:40 Efficient, Adaptive Mesh Distributions for Spectral Methods Applied to Nonlinear Acoustics**
E. Wise, B. Cox and B. Treeby

Wednesday 1 july, 2015 - Computational methods in Nonlinear Acoustics 3

Amphi 1 bis

Chair Persons: C. Bogey and B. Treeby

- 9:00 3D Numerical Simulation of the Long Range Propagation of Acoustical Shock Waves Through a Heterogeneous and Moving Medium.**
D. Luquet, F. Coulouvrat and R. Marchiano
- 9:20 Modeling of strongly-nonlinear wave propagation using the extended Rankine-Hugoniot shock relations**
J.-W. Lee, W.-S. Ohm and W. Shim

- 9:40 Time-domain simulation of constitutive relations for nonlinear acoustics including relaxation for frequency power law attenuation media modelling**
N. Jimenez, F. Camarena, V. Sanchez-Morcillo, J. Redondo and E.E. Konofagou
- 10:00 Nonlinear Propagation and Decay of Intense Regular and Random Waves in Relaxing Media**
S. Gurbatov, O. Rudenko and I. Demin

Wednesday 1 july, 2015 - Imaging and tissue characterization 2

Amphi 2

Chair Persons: R. Cleveland and M. Verweij

- 9:00 Nonlinearity parameter B/A of biological tissue ultrasound imaging in echo mode**
M. Toulemonde, F. Varray, A. Bernard, O. Basset and C. Cachard
- 9:20 Symmetry Analysis for Nonlinear Time Reversal methods applied to Nonlinear Acoustic Imaging**
S. Dos Santos and J. Chaline
- 9:40 Feasibility of Low-frequency Ultrasound Imaging Using Parametric Sound**
H. Nomura, H. Adachi and T. Kamakura
- 10:00 Focused Shear Shock Waves in Soft Solids and the Brain: Simulations and Experiments**
B. Giammarinaro, F. Coulouvrat and G. Pinton

Wednesday 1 july, 2015 - Non-linear propagation in heterogeneous media 1

Amphi 3

Chair Persons: R. Marchiano and T. Yano

- 9:40 Acoustic solitary waves in a lattice of Helmholtz resonators**
B. Lombard, J.-F. Mercier and O. Richoux
- 10:00 Nonlinear ultrasonic testing by Rayleigh waves on control of concrete cover - Application in thermal damage evaluation**
Q.A. Vu, V. Garnier, C. Payan, J.-F. Chaix and M. Lott

Wednesday 1 july, 2015 - Plenary lecture 3: Robert Mettin

Amphi 2

Chair Person: N. Sugimoto

- 11:00 Bubble dynamics in high-power ultrasonic fields**
R. Mettin

Wednesday 1 july, 2015 - Computational methods in Nonlinear Acoustics 4

Amphi 1 bis

Chair Persons: B. Treeby and P. Yuldashev

- 13:40 Modeling elastic wave propagation in a solid with distributed damage and kissing bonds using the Discontinuous Galerkin Finite Element Method**
O. Bou Matar, A. Trifonov and V. Aleshin
- 14:00 Evolution of bulk strain solitons in cylindrical inhomogeneous shells**
A. Shvartz, A. Samsonov, G. Dreiden and I. Semenova
- 14:20 Discontinuous Galerkin Method with Gaussian Artificial Viscosity on Graphical Processing Units for Nonlinear Acoustics**
B. Tripathi, B. Sambandam, F. Coulouvrat and R. Marchiano
- 14:40 Simulation of the interaction between a bubble and a ultrasound wave by implementing a two-phase compressible solver adapted to low Mach number regime.**
G. Huber, S. Tanguy, J.-C. Béra and B. Gilles

Wednesday 1 july, 2015 - Modeling in biology and medicine**Amphi 2****Chair Persons: M. Hamilton and C. Lafon**

- 13:40 Numerical Investigation of Bubble Nonlinear Dynamics Characteristics**
J. Shi, D. Yang, H. Zhang, S. Shi, B. Hu and S. Jin
- 14:00 A model for acoustic vaporization of encapsulated droplets**
F. Coulouvrat and M. Guédra
- 14:20 Nonlinear Dynamics of a Vapor Bubble Expanding in a Superheated Region of a Finite Size**
E. Annenkova, W. Kreider and O. Sapozhnikov
- 14:40 Numerical Study on the Effective Heating due to Inertial Cavitation in Microbubble-enhanced HIFU Therapy**
K. Okita, K. Sugiyama, S. Takagi and Y. Matsumoto

Wednesday 1 july, 2015 - Non-linear propagation in heterogeneous media 1**Amphi 3****Chair Persons: R. Marchiano and T. Yano**

- 13:40 Simulation of blast wave propagation from source to long distance with topography and atmospheric effects**
M. Nguyen-Dinh, O. Gainville and N. Lardjane
- 14:00 Revisiting Geometrical Shock Dynamics for blast wave propagation in complex environment**
J. Ridoux, N. Lardjane, T. Gomez and F. Coulouvrat
- 14:20 Numerical Study of Heterogeneous Mean Temperature and Shock Wave in a Resonator**
T. Yano
- 14:40 Nonlinear reflection of a spherically divergent N-wave from a plane surface: optical interferometry measurements in air**
P. Blanc-Benon, M. Karzova, S. Ollivier, V. Khokhlova and P. Yuldashev

Wednesday 1 july, 2015 - Plenary lecture 4: Igor Solodov**Amphi 2****Chair Person: O. Sapozhnikov**

- 15:30 Resonant Acoustic Nonlinearity for Sensitive Defect-Selective Imaging and NDT**
I. Solodov

Wednesday 1 july, 2015 - General nonlinear acoustics 4**Amphi 1 bis****Chair Person: S. Dos Santos**

- 16:40 High Frequency calibration of MEMS microphones using spherical N-waves**
S. Ollivier, C. Desjouy, P. Yuldashev, A. Koumela, E. Salze, L. Rufer and P. Blanc-Benon
- 17:00 Acoustic emission and magnification of atomic lines resolution for laser breakdown of salt water in ultrasound field**
A. Bulanov
- 17:20 Novel NWV Procedure for Characterizing Nonlinear Systems with Memory for Combating and Reducing the Curse of Dimensionality**
A. Nuttall, R. Katz, D. Hughes and R. Koch
- 17:40 Hydrodynamic aspects of explosive volcanic eruptions**
V. Kedrinskiy

Wednesday 1 july, 2015 - Non-destructive evaluation methods**Amphi 2****Chair Persons: P. Johnson and L. Ostrovsky**

- 16:40 Multimode Nonlinear Resonant Ultrasound Spectroscopy (NRUS): From the 1D to 3D Characterization of the Elastic Nonlinearity**
M. Remillieux, T. Ulrich, C. Lake, C. Payan and P.-Y. Le Bas
- 17:00 Coda Wave Interferometry Technique for Nonlinear Defects' Localization in composite plates**
A. Trifonov, O. Bou Matar, N. Smagin and V. Aleshin
- 17:20 DAET Monitoring Targeting Quality Control of Complex Industrial Products Manufacturing**
C. Trarieux, M. Defontaine, H. Moreschi and S. Callé
- 17:40 Nonlinear Ultrasonic Phased Array Imaging of Closed Cracks Using Global Preheating and Local Cooling**
Y. Ohara, K. Takahashi, Y. Ino and K. Yamanaka

Wednesday 1 july, 2015 - Non-linear propagation in heterogeneous media 2**Amphi 3****Chair Persons: R. Marchiano and T. Yano**

- 16:40 Numerical simulation of weakly nonlinear acoustic propagation in bubbly liquid**
J.-B. Doc, J.-M. Conoir, R. Marchiano and D. Fuster
- 17:00 Second-Harmonic Generation by a Single Layer of Bubbles**
O. Lombard, C. Barriere and V. Leroy
- 17:20 Cavitation inception by the backscattering of pressure waves from a bubble interface**
H. Takahira, T. Ogasawara, N. Mori and M. Tanaka
- 17:40 The sessile liquid droplet as a geometrically self- reconstructed nonlinear acoustic resonator**
A. Begar, V. Mozhaev and I. Nedospasov

Thursday 2 july, 2015 - Bubbles and cavitation 1**Amphi 1 bis****Chair Person: R. Mettin**

- 9:00 Theory and experimental demonstration of a single beam acoustical tweezers**
D. Baresch, J.-L. Thomas and R. Marchiano
- 9:20 Rotating small solid objects in liquids by a focused vortex ultrasound beam**
O. Sapozhnikov, M. Terzi, A. Nikolaeva, S. Tsysar and A. Maxwell
- 9:40 Theoretical investigation of the mechanisms involved in the modification of the cavitation threshold by multifrequency excitations**
M. Guédra, C. Desjoux, C. Insera, J.-C. Béra and B. Gilles
- 10:00 Factors Affecting the Cavitation Conditions Reproducibility**
N. Dezhkunov, A. Francescutto, A. Nikolaev and A. Kotukhov

Thursday 2 july, 2015 - Nonlinear propagation in fluids 1**Amphi 2****Chair Persons: J. Rathsam and V. Sparrow**

- 9:20 Propagation of acoustic shock waves between parallel rigid boundaries and into shadow zones**
C. Desjoux, S. Ollivier, O. Marsden, D. Dragna and P. Blanc-Benon
- 9:40 Benchmark problems for long range atmospheric infrasound propagation**
R. Sabatini, O. Marsden, C. Bogey and C. Bailly
- 10:00 Quantitative nonlinearity analysis of model-scale jet noise**
B.O. Reichman, K.G. Miller, K.L. Gee, T.B. Neilsen and A.A. Atchley

Thursday 2 july, 2015 - Solids and soft matter**Amphi 3****Chair Persons: P. Johnson and L. Ostrovsky**

- 9:00 Soil Plate Oscillator: Modeling Nonlinear Mesoscopic Elastic Behavior and Hysteresis in Non-linear Acoustic Landmine Detection**
M.S. Korman, D.V. Duong and A.E. Kalsbeek
- 9:40 3D TREND for crack orientation characterization**
P.-Y. Le Bas, T. Ulrich and B. Anderson
- 10:00 Bulk strain solitons in rods, plates and shells**
A. Samsonov, G. Dreiden, I. Semenova and A. Shvartz

Thursday 2 july, 2015 - Plenary lecture 5: Douglas Drob**Amphi 2****Chair Person: F. Coulouvrat**

- 11:00 Infrasound remote sensing of the atmosphere**
D. Drob

Thursday 2 july, 2015 - Bubbles and cavitation 2**Amphi 1 bis****Chair Person: B. Gilles**

- 13:40 Acoustic wave equation in bubbly liquid**
B. Miao and Y. An
- 14:00 Dynamics of an aspherical bubble oscillating near a rigid sphere**
E. Kurihara
- 14:20 Nonlinear activity of acoustically driven gas bubble near a rigid boundary**
A. Maksimov
- 14:40 Derivation of the nonlinearity parameter B/A of saturated, unconsolidated marine sediments via a statistical approach**
H. Lee, E. Noh, W.-S. Ohm and O.-C. Kwon

Thursday 2 july, 2015 - Nonlinear propagation in fluids 2**Amphi 2****Chair Persons: A. Atchley and D. Juvé**

- 13:40 Development of Nonlinear Acoustic Propagation Analysis Tool toward Realization of Loud Noise Environment in Aeronautics**
M. Kanamori, T. Takahashi and T. Aoyama
- 14:00 Structures of lee waves over combined topography**
J. Maltseva and N. Makarenko
- 14:20 Second Harmonic Coupling Coefficient in Resonant Nonlinear Generation of Water Surface Waves**
A. Bettucci, A. Alippi and M. Germano
- 14:40 The Study of Some Factors on Sound Wave Propagation in the Air**
K. Han, X. Zeng, D. Chen and X. Ma

Thursday 2 july, 2015 - Granular media 1**Amphi 3****Chair Persons: P. Johnson and L. Ostrovsky**

- 13:40 Irreversible Nonlinear Sound-Matter Interaction in Granular Media**
X. Jia
- 14:20 Modeling of non-linear interaction of waves in rocks**
C. Larmat, R. Guyer, P.-Y. Le Bas, P. Johnson and J. Ten Cate
- 14:40 Modulation of P-waves by S-waves in rocks**
A. Malcolm, J. Ten Cate, X. Feng and M. Fehler

Thursday 2 july, 2015 - Sonic boom propagation**Amphi 2****Chair Persons: F. Coulouvrat and A. Loubeau**

- 15:40 Lateral Cutoff Analysis and Results from NASA's Farfield Investigation of No-boom Thresholds**
L. Cliatt, E. Haering, S. Arnac and M. Hill
- 16:00 Numerical Model of Sonic Boom in 3D Kinematic Turbulence.**
F. Coulouvrat, D. Luquet and R. Marchiano
- 16:20 Measured N-Wave Sonic Boom Events and Sensitivity in Sonic Boom Metrics**
J. Palmer and V.W. Sparrow

Thursday 2 july, 2015 - Granular media 2**Amphi 3****Chair Persons: P. Johnson and L. Ostrovsky**

- 15:40 Slow Dynamics in Granular Media: Theoretical Models and Experiments**
P. Johnson, A. Lebedev, L. Ostrovsky and J. Riviere
- 16:00 In Situ Acoustoelastic Testing: A Passive Monitoring Approach to Study Crustal and Fault Zone Rocks**
G. Hillers
- 16:20 Observations of the Nonlinear Interaction of Two Waves Intersecting at Angles in Earth Materials**
J. Ten Cate, P.-Y. Le Bas, C. Larmat, P. Johnson and R. Guyer

Friday 3 july, 2015 - Plenary lecture 6: Peter Coen**Amphi 3****Chair Person: V. Sparrow**

- 9:00 Breaking the Sound Barrier: Achieving Overland Supersonic Flight without Sonic Boom Disturbance**
P. Coen

Friday 3 july, 2015 - Perception of sonic boom**Amphi 3****Chair Persons: L. Cliatt and F. Dagrau**

- 10:00 An investigation into the effect of playback environment on perception of sonic booms when heard indoors**
D. Carr and P. Davies
- 10:20 Influence of chair vibrations on indoor sonic boom annoyance**
J. Rathsam, J. Klos and A. Loubeau
- 11:00 A New Evaluation of Noise Metrics for Sonic Booms Using Existing Data**
A. Loubeau, Y. Naka, B.G. Cook, V.W. Sparrow and J.M. Morgenstern
- 11:20 Understanding Sources of Uncertainty and Bias Error in Models of Human Response to Low Amplitude Sonic Booms**
J. Gavin, M. Collmar, B.G. Cook, R. Cowart and D. Freund

Friday 3 july, 2015 - Sonic boom industry panel - 11:40**Amphi 3****Chair Person: V. Sparrow****Friday 3 july, 2015 - Q and A with Concorde/Air France experts - 14:00****Amphi 3**

List of participants

Adachi S.	Drob D.	Lee J.-W.	Saidoun A.
An Y.	Ducousso M.	Lezaud P.	Salze E.
Angelsen B.A.J.	Duval G.	Lim H.J.	Samsonov A.
Annenkova E.	El Boukhrissi F.	Lipkens B.	Sapozhnikov O.
Atchley A.	Eyraud P.	Liu X.	Seck A.
Bader K.	Favier de Coulomb A.	Lombard B.	Shi J.
Bailliet H.	Gainville O.	Lombard O.	Shimizu D.
Barriere C.	Giammarinaro B.	Lotton P.	Shoma O.
Begar A.	Gilles B.	Loubeau A.	Shvartz A.
Bessis R.	Guedra M.	Lowe J.	Sohn H.
Bettucci A.	Gurbatov S.	Luquet D.	Solodov I.
Biwa T.	Hamilton M.	Maksimov A.	Sparrow V.
Blanc-Benon Ph.	Han K.	Malcolm A.	Spratt K.
Bogey C.	Hertl M.	Maltseva J.	Sturdza P.
Botton V.	Hillers G.	Marchiano R.	Sugimoto N.
Bou Matar O.	Hobæk H.	Martin E.	Takahira H.
Brambley E.	Hu B.	Mettin R.	Ten Cate J.
Bulanov A.	Huber G.	Meziane A.	Thomas J.-L.
Cain C.	Hughes D.	Molevich N.	Toulemonde M.
Carr D.	Hyodo H.	Myck T.	Tournat V.
Cassereau D.	Inserra C.	Nguyen-Dinh M.	Trarieux C.
Cleveland R.	Ishii K.	Nikolaeva A.	Treeby B.
Cliatt L.	Jegou Y.	Nomura H.	Treweek B.
Coen P.	Jia X.	Ohara Y.	Trifonov A.
Collmar M.	Jimenez N.	Okita K.	Tripathi B.
Comte-Bellot G.	Johnson P.	Olivier C.	Troian R.
Conoir J.-M.	Jun Y.	Ollivier S.	Tsysar S.
Cook B.	Juvé D.	Ostrovsky L.	Ueda Y.
Cormack J.	Kanagawa T.	Palmer J.	Umemura S.-I.
Cornu C.	Kanamori M.	Penelet G.	Valière J.-C.
Coulouvrat F.	Kartofelev D.	Pereira A.	Vanhille C.
Cowart R.	Karzova M.	Perriaux M.-G.	Varray F.
Cristea A.	Kedrinskiy V.	Pinton G.	Verweij M.
Dagrau F.	Khokhlova V.	Poignand G.	Vigeant M.
Damdinov B.	Kido A.	Prieur F.	Vilchinska N.
Daru V.	Kondoh J.	Prokhorov V.	Vos H.
Degret F.	Korman M.S.	Qian F.	Vu Q.A.
Demi L.	Korobov A.	Qiao S.	Wise E.
Derra M.	Koyama D.	Rathsam J.	Wu R.
Desjouy C.	Krit T.	Remillieux M.	Yang D.
Desmond K.	Kurihara E.	Rendón P.L.	Yano T.
Dewayse E.	Kvam J.	Renier M.	Yuldashev P.
Dezhkunov N.	Lafon C.	Riashchikov D.	Zambardi C.
Didenkulov I.	Lafond M.	Ridoux J.	Zavershinskiy D.
Doc J.-B.	Larmat C.	Roland P.	Zhang D.
Doinikov A.	Lauterborn W.	Rosnitskiy P.	Zhang H.
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Dragna D.	Lee H.	Sabir B.	

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