11th International Workshop on Nonlinear Elasticity in Materials
Workshop Programme

Sunday, 4 June	
18.00 – 19.00	**Registration**
19.00 – 21.00	**Welcome Dinner**

Monday, 5 June Industrial and Medical Nonlinear NDE	
8:30 – 8:40	Welcome and introduction: Paul Johnson, Michele Meo
8:40 – 9.20	R. Guyer, Nonlinear mesoscopic elasticity: overview and state of the art.
9.20 – 10.00	Alexander Sutin, 'Nonlinear Acoustics in NDE Applications'
10.00 – 10.40	K. Van Den Abeele, Bart Van Damme and Tomasz Katkowski, 'Inferring the elementary hysteresis properties of CFRP beams with thermal and fatigue damage from nonlinear reverberation spectroscopy measurement in flexural mode.'
10.40 – 11.00	Coffee Break
11.00 – 11.40	Solodov, K. Pfleiderer, M. Mayer, and G. Busse, 'Ultimate nonlinear spectra: phenomenology, experiments, and defect selective NDE'
11.40 – 12.20	T. A. Saleh, J.A. TenCate , P.A. Johnson, and T.J. Ulrich, 'Nonlinear Resonant Ultrasound Spectroscopy and Neutron Diffraction Studies of Progressive Fatigue Damage in HAYNES 230, a Nickel Based Superalloy
12.20 – 13.00	C W Stammers, 'Nonlinear hysteretic effects in a vehicle seat cushion and driver viscera'
13.00 - 13.40	Guillaume Renaud, 'Nonlinear Acoustics for assessment of bone tissue fragility in context of osteoporosis diagnosis'
13.40	Lunch
15.00 – 16.30	Discussion Groups

Tuesday, 6 June Medical Nonlinear NDE, Continued; Theory/Modeling	
9.00 – 9.40	M. Muller, A. D'Hanens, D. Mitton, M. Talmant, P. Johnson, P. Laugier, 'Nonlinear Resonant Ultrasound Spectroscopy for micro-damage assessment in human bone'
9.40 – 10.20	N. Kharin, B.K.Choi, A Sutin, B. Davis, A. Sarvazyan, 'Nonlinear acoustic assessment of the human calcaneus'
10.20 – 11.00	Coffee Break
11.00 – 11.20	D. Pasqualini and E. Mas, 'Damage and Nonlinearity'
11.20 – 12.00	C. Larmat, J.-P. Montagner, J. Tromp, 'Localization and imaging of seismic sources using time reversal.'
12.00 – 12.40	'V. Aleshin, and K. Van Den Abeele, 'Physical friction-based model for a tensorial description of stress-strain in materials with internal contacts'
12.40 – 13.20	Oleksiy O. Vakhnenko, Vyacheslav O. Vakhnenko, Thomas J. Shankland, and James A. Ten Cate, 'Soft-Ratchet Model of Nonclassical Nonlinear Dynamics of Rocks

13.20 – 14.00	S. Dos Santos and C. Plag, 'Symmetry Analysis : a way to find how to excite and analyze a complex system. Applications for Imaging the Elastic Nonlinear Behavior of Solids'
14.00	Lunch
15.00 – 16.30	Discussion Groups

Wednesday, 7 June	
9.00 – 17.00	Guided tour of Vesuvius and volcano observatory with a volcanologist from University of Napoli
20.30	Workshop Dinner

Thursday, 8 June **Geosciences and Elastic Nonlinearity**	
9.00 – 9.40	F. D. Pearce, P. A. Johnson, J. Gomberg, P. Bodin, X. Jia, and M. N. Toksöz, 'In situ measurement of nonlinear soil response applying an active source: Application to local site characterization'
9.40 – 10.20	A. Sutin' , Brad Libbey, Victor Kurtenoks, Douglas Fenneman, Armen Sarvazyan,' Nonlinear detection of land mines using wide bandwidth time-reversal techniques'
10.20 – 11.00	C. Inserra, V. Tournat and V. Gusev, 'Spectral signatures of clapping contacts in acoustic wave propagation through a disordered packing of glass beads'
11.00 – 11.20	Coffee Break
11.20 – 12.00	P. A. Johnson H. Savage C. Marone, and M. Knuth , 'Stick-Slip and Nonlinear Dynamics'
12.00 – 12.40	J. A. TenCate and T. W. Darling, 'A tale of two fonts'
12.40 – 13.20	Peter M. Roberts, Amr I. Abdel-Fattah, James A. TenCate, 'Acoustic coupling to colloid interactions at solid/liquid interfaces under varying physicochemical conditions'
13.20 – 14.00	Lunch
14.30 -15.10	C. Payan, V. Garnier, G. Corneloup, J. Moysan, 'Potential of Nonlinear Resonant Ultrasound Spectroscopy to monitor thermal damage in concrete'
15.10 -15.50	Stijn Mertens and Jan Carmeliet, 'The influence of mechanical damage on the quasi-static nonlinear tensile response of geomaterials.
15.50 – 16.10	Coffee
16.10 – 17.30	Future Research Directions and Funding Opportunities

Friday, 8 June **Time Reversal Nonlinear Elastic Wave Spectroscopy/ Solitary Waves**	
9.00 – 9.40	T.J. Ulrich, P. Johnson and R. Guyer, Nonlinear dynamics and time reversed acoustic imaging

9.40 – 10.20	K. Van Den Abeele, Pierre-Yves Le Bas and Sigfried Vanaverbeke, 'Numerical and experimental studies in preparation of a damage localisation technique using Nonlinear Time Reversal Acoustics'
10.20 – 11.00	A. Salupere, Jüri Engelbrecht, 'Solitary deformation waves in microstructured solids''
11.00 – 11.20	Coffee Break
11.20 – 12.00	M Meo, G Zumpano, U Polimeno, 'Nonlinear Time Reversal Acoustics to detect stress corrosion cracking in a welded plated'
12.00 – 12.40	Alexander Sutin and Armen Sarvazyan, 'Advantages of Time Reversal Acoustic focusing system in biomedical applications'
12.40 – 13.20	S. Dos Santos , T. Goursolle, 'Nonlinear Time Reversal Acoustics : Experiments and Simulations'
13.20 – 14.20	Lunch
14:20-15:00	Sutin' , Brad Libbey, Victor Kurtenoks, Douglas Fenneman, Armen Sarvazyan,' Nonlinear detection of land mines using wide bandwidth time-reversal techniques

Saturday, 9th June	
9.00 – 10.55	Final Discussions
10.55 – 11.05	Coffee Break
11.05 – 13.00	Final Discussions
13.00 – 14.30	Lunch