

The 2nd International Conference
on Advanced Modelling
of Wave Propagation in Solids
the ECCOMAS Regional Conference

under the auspices of

European Community
on Computational
Methods in Applied
Science

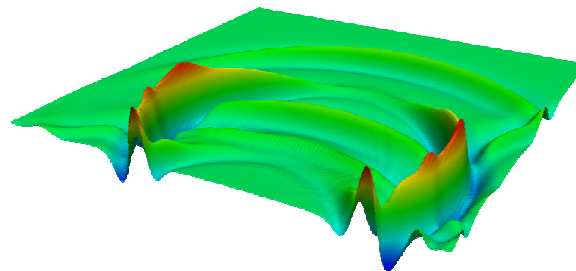
Institute
of Thermomechanics
CAS, v. v. i.

Central European
Association for
Computational
Mechanics

The Czech Society
for Mechanics



Centre of Excellence for Nonlinear Dynamic Behaviour of Advanced Materials in Engineering



September 17-21, 2018

Institute of Thermomechanics, v. v. i.
The Czech Academy of Sciences
Prague, Czech Republic

<http://wavemodelling2018.it.cas.cz>

Programme

Programme overview

	Sunday September 16	Monday September 17	Tuesday September 18	Wednesday September 19	Thursday September 20	Friday September 21
7:30-8:30		Registration				
8:30-9:00		Welcome and opening				
9:00-10:00		KEYNOTE 1 Hoon Huh	KEYNOTE 2 Marc Bonnet	KEYNOTE 3 Wayne Chen	KEYNOTE 4 Eugene Zaretsky	KEYNOTE 5 Eduard Rohan
10:00-10:30		Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
10:30-11:00		BLOCK 2	BLOCK 6	BLOCK 10	BLOCK 14	BLOCK 18
11:00-11:30						
11:30-12:00						
12:00-13:30		Lunch	Lunch	Lunch	Lunch	Lunch
13:30-14:00		BLOCK 3	BLOCK 7	BLOCK 11	BLOCK 15	BLOCK 19
14:00-14:30						
14:30-15:00						
15:00-15:30		Coffee break	Coffee break	Coffee break	Coffee break	
15:30-16:00		BLOCK 4	BLOCK 8	BLOCK 12	BLOCK 16	
16:00-16:30						
16:30-17:00				Closing		
17:00		Closing	Closing		Closing	
17:00-19:00	Pre- registration and Welcome Drink					
19:00-21:00				Banquet at the Villa Richter		

Technical programme

Day 1 – Monday, September 17, 2018	
7:30 – 8:30	Registration – J. Heyrovsky Institute of Physical Chemistry
8:30 – 9:00	Welcome and opening
Keynote 1	Chairman: K.C. Park
9:00 – 10:00	Huh H. , Park C., Joo G, WAVE PROPAGATION IN MEASUREMENT OF FLOW STRESS WITH HOPKINSON BAR TESTS AT HIGH STRAIN RATES
10:00 – 10:30	Coffee break
Section 2	Shock waves – Chairman: Huh H.
10:30 – 11:00	Park K. C. TOWARD NUMERICAL REALIZATION OF SPLIT-HOPKINS PRESSURE BAR: A FONDEST HOPE BY A COMPUTATIONAL MECHANICIAN
11:00 – 11:30	Fíla T. , Zlámal P., Falta J., Adorna M. DIRECT IMPACT HOPKINSON BAR: APPLICATION ON 3D PRINTED AUXETIC LATTICES AND OTHER CELLULAR STRUCTURES
11:30 – 12:00	Naimark O. DEFECT INDUCED METASTABILITY AND POWER UNIVERSALITY OF WAVE FRONTS IN SHOCKED CONDENSED MATTER
12:00 – 13:30	Lunch
Section 3	Nonlinear waves in solids – Chairman: Naimark O.
13:30 – 14:00	Engelbrecht J. , Berezovski A., Peets T., Tamm K. WAVE ENSEMBLES IN COMPLEX MEDIA
14:00 – 14:30	Jeon W. ACOUSTIC BLACK HOLES: FROM GENERALIZATION TO REALIZATION
14:30 – 15:00	Salupere A. , Ratas M. 2D DISCRETE SPECTRAL ANALYSIS AND EMERGENCE OF SOLITONIC STRUCTURES
15:00 – 15:30	Coffee break
Section 4	Waves in heterogeneous materials – Chairman: Engelbrecht J.
15:30 – 16:00	Adámek V. , Valeš F., Červ J. TRANSIENT WAVES IN FUNCTIONALLY GRADED STRIP UNDER IMPACT LOADING
16:00 – 16:30	Foglar M. , Hájek R., Stoller J., Pachman J. BLAST OVERPRESSURE PROPAGATION IN FUNCTIONALLY LAYERED CEMENTITIOUS COMPOSITES
16:30 – 17:00	Kolman R. , Cho S.S., Park K.C., González J.A, Berezovski A., Hora P., Adámek V. A LOCAL TIME STEPPING FOR DISCONTINUOUS WAVE PROPAGATION IN A HETEROGENEOUS BAR
17:00	Closing of the technical programme

Day 2 – Tuesday, September 18, 2018	
Keynote 2	Chairman: Bonnet-Ben Dhia A-S.
9:00 – 10:00	Bonnet M. , Aquino W. IDENTIFICATION OF HETEROGENEOUS ELASTIC MODULI USING A MODIFIED ERROR IN CONSTITUTIVE EQUATION FUNCTIONAL: THE CASE OF INTERIOR ELASTODYNAMIC DATA AND UNDERDETERMINED BOUNDARY CONDITIONS
10:0 – 10:30	Coffee break
Section 6	Numerical methods I – Chairman: Chaillat S.
10:30 – 11:00	Cottureau R. , Sevilla R. INFLUENCE OF MATERIAL HETEROGENEITY ON THE STABILITY OF EXPLICIT HIGH-ORDER SPECTRAL ELEMENT METHODS
11:00 – 11:30	Tkachuk A. , Schaeuble A.-K., Bischoff M. VARIATIONAL CONSTRUCTION OF RECIPROCAL MASS MATRICES FOR B-SPLINE-BASED FINITE ELEMENTS: MULTIPARAMETER TEMPLATES AND CUSTOMIZATION
11:30 – 12:00	González J. A. , Kopačka J., Kolman R., Cho S. S., Park K. C. RECIPROCAL MASS MATRICES FOR ISOGEOMETRIC ANALYSIS VIA THE METHOD OF LOCALIZED LAGRANGE MULTIPLIERS
12:00 – 13:30	Lunch
Section 7	Defects in materials I – Chairman: Salupere A.
13:30 – 14:00	Převorovský Z. , Mračko M., Kober J., Krofta J., Kolman R. ACOUSTIC SOURCE LOCATION BY TIME REVERSAL SIGNAL TRANSFER FROM EXPERIMENT TO NUMERICAL MODEL (DIGITAL TWIN)
14:00 – 14:30	Lints M. , Salupere A., Dos Santos S. NUMERICAL SIMULATION OF ULTRASONIC TIME REVERSAL ON DEFECTS IN CARBON FIBRE REINFORCED POLYMER
14:30 – 15:00	Hirsehorn S. ELASTIC WAVE PROPAGATION AND SCATTERING MODELLING ASSISTED NONDESTRUCTIVE TESTING AND MICROSTRUCTURED MATERIALS EVALUATION
15:00 – 15:30	Coffee break
Section 8	Numerical methods I – Chairman: González J. A.
15:30 – 16:00	Gabriel D. , Kopačka J., Kolman R., González J. A., Plešek J. 2D/3D EXPLICIT FINITE ELEMENT CONTACT-IMPACT ALGORITHM WITH BIPENALTY STABILIZATION
16:00 – 16:30	Mračko M. , Kolman R., Kober J., Převorovský Z., Plešek J. INFLUENCE OF TEMPERATURE IN COMPUTATIONAL TIME REVERSAL METHOD
16:30 – 17:00	Kruisová A. , Kolman R., Plešek J. TEMPORAL-SPATIAL DISPERSION ERRORS IN FEM MODELLING OF WAVE PROPAGATION AND IMPLICIT TIME INTEGRATION
17:00	Closing of the technical programme

Day 3 – Wednesday, September 19, 2018	
Keynote 3	Chairman: Zaretsky E.
9:00 – 10:00	Hudspeth M., Chen W. WAVE DEVELOPMENT IN HIGH-PERFORMANCE YARNS UNDER TRANSVERSE IMPACT
10:0 – 10:30	Coffee break
Section 10	Metamaterials, periodic structures – Chairman: Chen W.
10:30 – 11:00	Khajehtourian R. , Rafsanjani A., Bertoldi K., Kochmann D. TRANSITION WAVES IN RECONFIGURABLE MULTISTABLE SOFT STRUCTURES
11:00 – 11:30	Koller M. , Kruisová A., Seiner H., Sedlák P., Román-Manso B., Miranzo P., Belmonte M., Landa M. ACOUSTIC ENERGY FOCUSING IN ROBOCAST CERAMIC SCAFFOLDS
11:30 – 12:00	Gitman I. , Song Y. DISPERSIVE WAVE PROPAGATION IN MATERIAL WITH PERIODIC AND RANDOM MICROSTRUCTURE
12:00 – 13:30	Lunch
Section 11	Waves in plates – Chairman: Převorovský Z.
13:30 – 14:00	Baronian V., Bonnet-Ben Dhia A-S., Fliss S., Tjandrawidjaja Y. , THE HALF-SPACE MATCHING METHOD FOR LAMB WAVE SCATTERING IN ANISOTROPIC PLATES
14:00 – 14:30	Grabec T. , Sedlák P., Seiner H., Landa M. RITZ-RAYLEIGH APPROACH: NUMERICAL CALCULATION OF WAVES IN PLATES OF HIGH ANISOTROPY
14:30 – 15:00	Lukáš D. , Malý L., Straková E., Schöberl J. PARALLEL TDNNS-FEM FOR ELASTODYNAMICS OF THIN-WALLED STRUCTURES
15:00 – 15:30	Coffee break
Section 12	Acoustic problems, fluid structure interaction – Chairman: Park K.C.
15:30 – 16:00	Ledet L.S. , Sorokin S.V. EIGENFREQUENCY ANALYSIS OF ELASTIC STRUCTURES UNDER HEAVY FLUID LOADING BY MEANS OF THE BI-ORTHOGONALITY RELATIONS
16:00 – 16:30	Chaillat S. , Amlani F., Loseille A. ANISOTROPIC HIGH-ORDER ADAPTIVE BOUNDARY ELEMENT METHODS FOR 3D ACOUSTICS
16:30	Closing of the technical programme
Social programme	
19:00 – 21:00	Conference banquet takes place at the terrace of the restaurant Villa Richter

Day 4 – Thursday, September 20, 2018	
Keynote 4	KEYNOTE – Chairman: Ocaña J.L.
9:00 – 10:00	Zaretsky E. , Frage N., Meshi L. SHOCK WAVES. WHAT MAY BE LEARNT FROM THEIR PROPAGATION THROUGH SOLIDS?
10:0 – 10:30	Coffee break
Section 14	Application of Lasers in Wave Propagation and Shock waves – Chairman: Rostohar D.
10:30 – 11:15	Ocaña J. L. , García-Beltrán A., Angulo I., Cordovilla F. NUMERICAL SIMULATION OF PLASMA DYNAMICS AND SHOCK INDUCED RESIDUAL STRESSES IN THE LASER SHOCK PROCESSING OF METALLIC MATERIALS
11:15 – 12:00	Joshi S, Franc J.-P, Ghigliotti G., Fivel M. SMOOTHED PARTICLE HYDRODYNAMICS SIMULATIONS OF CAVITATION BUBBLE COLLAPSE INDUCED PLASTICITY
12:00 – 13:30	Lunch
Section 15	Seismic waves – Chairman: Bonnet M.
13:30 – 14:00	Colvez M. , Cottureau R., Lopez-Caballero F. INFLUENCE OF CRUST HETEROGENEOUS PROPERTIES CLOSE TO A FAULT ON SEISMIC WAVE PROPAGATION
14:00 – 14:30	Klimeš L. REPRESENTATION THEOREM FOR VISCOELASTIC WAVES WITH A NON-SYMMETRIC STIFFNESS MATRIX
14:30 – 15:00	Růžek B. , Pšenčík I. INVERSION OF P-WAVE VSP TRAVELTIMES IN ANISOTROPIC MEDIA
15:00 – 15:30	Coffee break
Section 16	Nonlinear waves in solids – Chairman: Gitman I.
15:30 – 16:00	Porubov A. , Antonov I. CONTROL OF NONLINEAR STRAIN WAVES IN DI-ATOMIC CRYSTALLINE MEDIA
16:00 – 16:30	Berjamin H., Lombard B. , Chiavassa G., Favrie N., PLANE-STRAIN WAVES IN NONLINEAR ELASTIC SOLIDS WITH SOFTENING
16:30 – 17:00	Hora P. , Machová A., Červ J., Uhnáková A. ACOUSTIC EMISSION FROM FAST DISLOCATIONS IN 3D BCC IRON CRYSTALS
17:00	Closing of the technical programme

Day 5 – Friday, September 21, 2018	
Keynote 5	KEYNOTE – Chairman: Berezovski A.
9:00 – 10:00	Rohan E. , Nguyen V.-H., Naili S. HOMOGENIZATION AND BLOCH ANALYSIS OF WAVE DISPERSION IN HETEROGENEOUS FLUID SATURATED POROUS MEDIA
10:00 – 10:30	Coffee break
Section 18	Composite materials – Chairman: Porubov A.
10:30 – 11:00	Bar-On B. STOMATAL MICRO-TO-MACRO MECHANICS: THE ROLE OF MECHANICAL ANISOTROPY ON BIO-MECHANICAL FUNCTION
11:00 – 11:30	Parma S. , Červ J., Plešek J. ON EQUIVALENCE OF THE STRESS AND DISPLACEMENT FORMULATION OF THE RAYLEIGH WAVES PROPAGATION PROBLEM IN TWODIMENSIONAL COMPOSITE MATERIAL
11:30 – 12:00	Acevedo R. , Kolman R., Trnka J., Mochar D., Gabriel D. BEHAVIOUR OF Ti6Al4V AUXETIC HONEYCOMB STRUCTURE UNDER DYNAMIC LOADING
12:00 – 13:30	Lunch
Section 19	Defects in materials II – Chairman: Rohan E.
13:30 – 14:00	Gliozzi A. , Miniaci M., Krushynska A., Bosia F., Scalerandi M., Morvan B., Pugno N. ACOUSTIC METAMATERIALS AND PHONONIC CRYSTALS PROPERTIES IN WAVE PROPAGATION APPLIED TO NONLINEAR NDT
14:00 – 14:30	Kober J. , Chlada M., Zeman R. GEOMETRIC RAY TRACING APPLIED TO TIME REVERSED ACOUSTICS
14:30	Closing of the conference