

JUNE 28, TUESDAY

Room A

Morning Session

CHAIRMAN D.A. INDEITSEV

9:30 – 10:00 OPENING CEREMONY

10:00 – 10:40 A.I. Borovkov, V.A. Palmov. Basic Solutions and Regular Expansion in the Mechanics of Periodic Composites

10:40 – 11:20 W. Pietraszkiewicz. Dynamically and Kinematically Exact Theory of Irregular Shell Structures and its Numerical Implementation

Break

Minisymposium “Application of Mechanics to Aerospace Systems”

CHAIRMAN M.P. CARTMELL

11:30 – 12:00 A. Steindl, H. Troger. Stability Problems Related to the Space Elevator

12:00 – 12:30 R.W. Tucker, D. Burton. Twisted Ring Laser Accelerometers

Coffee break

12:50 – 13:20 A.M. Krivtsov, E.M. Galimov, M.S. Legkostupov, A.V. Zabrodin. Simulation of Earth–Moon System Development

13:20 – 13:50 P. Duó. Prediction of Foreign Object Damage

Evening Session

15:30 – 16:00 M. Francis, D. Biamonti, A. McCall, J.P. Sanchez, G. Albaladejo, D. Moore, S. Graham, C. Murray, S. Shahid, P. Trivedi, D. Santhanakrishnan, G. Radice, G. Hughes. Lunar Net-Lander: Mission Overview

16:00 – 16:30 M. Francis, D. Biamonti, A. McCall, J.P. Sanchez, G. Albaladejo, D. Moore, S. Graham, C. Murray, S. Shahid, P. Trivedi, D. Santhanakrishnan, G. Radice, G. Hughes. Lunar Net-Lander: Surface Components

Coffee break

16:50 – 17:20 M. Francis, D. Biamonti, A. McCall, J.P. Sanchez, G. Albaladejo, D. Moore, S. Graham, C. Murray, S. Shahid, P. Trivedi, D. Santhanakrishnan, G. Radice, G. Hughes. Lunar Net-Lander: Orbital Analysis

17:20 – 17:50 M.P. Cartmell, M.C. D’Arrigo. Simultaneous Forced and Parametric Excitation of a Space Tether

Room B

Morning Session

Minisymposium “Wave Mechanics of Civil Engineering Structures”

CHAIRMAN A.V. METRIKINE

11:30 – 12:00 G.L. Kuiper, A.V. Metrikine. Non-linear Analysis of Dynamic Stability of an Offshore Pipe Conveying Fluid

12:00 – 12:30 I.V. Sturova. Unsteady Behavior of an Elastic Beam Floating on the Surface of Deep Water

Coffee break

12:50 – 13:20 A.K. Abramian. Localized Waves in Shallow Water Caused by a Soliton Moving Along the Bottom

13:20 – 13:50 K.L. Muratkov, A.L. Glazov. Thermoelastic Photoacoustic Microscopy of Vickers Indented Metals

Evening Session

15:30 – 16:00 L.V. Nikitin. Statics and Dynamics of Rods with Skin Friction

16:00 – 16:30 J. Mennink, F. Soetens, N.A. Kutanova. Cross-sectional Stability of Aluminium Extrusions

Coffee break

16:50 – 17:20 M. Steenbergen. On the Effect of the Interface Conditions on the Dynamic Response of a Beam on a Half-Space to a Moving Load

17:20 – 17:50 J.S. Hoving, F. Molenkamp. The Dynamic Response of a Discrete Lattice Containing Dry-Friction Elements to a Surface Load

17:50 – 18:20 A.V. Metrikine. A Discontinuous-Strip Method for Calculation of the Dynamic Response of Periodically-Inhomogeneous 3D Structures to Moving Loads

JUNE 29, WEDNESDAY

Room A

Morning Session

CHAIRMAN I.G. GORYACHEVA

9:30 – 10:10 E.A. Ivanova, A.M. Krivtsov, N.F. Morozov, B.N. Semenov, A.D. Firsova. Nanomechanics: Continuum and Discrete Approaches
10:10 – 10:50 D.P. Boso, M. Lefik, B.A. Schrefler. Multiscale Modelling for Composites Including Continuum to Discrete Linkage
10:50 – 11:30 A. Castellanos. Correlation Between Interparticle Forces and Bulk Behaviour in Fine Powders

Break

CHAIRMAN A.M. KRIVTSOV

Dynamics of rigid bodies and multibody dynamics

11:40 – 12:00 T.V. Salnikova. On the Stability of Linear Potential Gyroscopic Systems
12:00 – 12:30 I.A. Pasynkova. Bifurcations of Cylindrical Precessions of an Unbalanced Rotor
12:30 – 12:50 V.M. Morozov, V.I. Kalenova, M.A. Salmina. Stability and Stabilization of Nonholonomic Systems of Special Class

Coffee break

13:10 – 13:30 A.S. Kuleshov. On the Snakeboard Dynamics
13:30 – 13:50 A.A. Loktev, Yu.A. Rossikhin, M.V. Shitikova. Dynamic Stability of an Orthotropic Plate Subjected Impact Excitation
13:50 – 14:10 A.V. Karapetyan. Invariant Sets of Dynamical Systems with First Integrals: Theory and Applications

Evening Session

CHAIRMAN A.D. SERGEYEV

Mechanical and civil engineering applications

15:30 – 15:50 N.V. Banichuk, S.Yu. Ivanova, E.V. Makeev, A.V. Sinitsyn. Non-local Shell Optimization with Application of Genetic Algorithm
15:50 – 16:10 A.A. Dobroskok, A.M. Linkov, A. Ghassemi. Complex Variable BEM for 2D Problems of Heat, Current or Fluid Flow within, along and across Structural Elements
16:10 – 16:30 B. Wilczyński, Z. Mróz. Optimal Design of Notched Components Against Fracture and Fatigue Failure

Coffee break

16:50 – 17:10 D.P. Kouzov. The Gravitation Correction for the Acoustics Equations
17:10 – 17:30 P.E. Tovstik, T.M. Tovstik, V.A. Shekhovtsov. On the Mariner Fixed Offshore Platform Dynamics Under Random Wave Forces
17:30 – 17:50 Y. Stylianou, D.G. Luchinsky, V.N. Smelyanskiy. Reconstruction of Nonlinear Dynamics from Noisy Incomplete Measurements

Room B

EUROMECH COLLOQUIUM 468

“MULTI-SCALE MODELLING IN THE MECHANICS OF SOLIDS”

JUNE 30, THURSDAY

Room A

Morning Session

CHAIRMAN A.M. KRIVTSOV

9:30 – 10:10 I.G. Goryacheva. Multi-Scale Analysis in Contact Mechanics

10:10 – 10:50 P.A. Zhilin. Some Problems of the Nonlinear Rod Theory

10:50 – 11:30 K.P. Chong. Nano Science and Engineering in Mechanics

Break

CHAIRMAN D.A. INDEITSEV

Fluid and Gas

11:40 – 12:00 V.V. Kozlov, Yu.A. Litvinenko, L.L. Loefdahl, V.G. Chernorai, G.R. Grek. Nonlinear Sinusoidal and Varicose Instability in the Boundary Layer (Review)

12:00 – 12:20 A.A. Ivanova, V.G. Kozlov. Lift Force Acting the Solids in Liquid Under Vibrations

12:20 – 12:40 L.A. Molotkov. Velocities of Wave Propagation in Fluid Mixtures

Coffee break

13:00 – 13:20 V. Shevtsova, A. Myaldun, D. Melnikov. Stability of Oscillatory Flow in Liquid Column

13:20 – 13:40 S.C. Paul, M.C. Paul, T. Korakianitis, W.P. Jones. Large Eddy Simulation and PDF for Turbulent Combustion Flows

Evening Session

CHAIRMAN E.F. GREKOVA

Solids and Structures

15:30 – 15:50 A. Scalia, M.A. Sumbatyan. Harmonic Vibration of Rigid Punch on the Free Surface of a Porous Elastic Half-plane

15:50 – 16:10 E. Scarpetta, M.A. Sumbatyan. One-mode P-wave Propagation through a Periodic Array of Interface Cracks

Coffee break

16:30 – 16:50 F.A. Gilabert, A.M. Krivtsov, A. Castellanos. Computational Design and Mechanical Characterization of Microstructured Solids in Layers

16:50 – 17:10 S.A. Atroshenko, S.I. Krivosheev, Y.V. Petrov, A.A. Utkin, G.D. Fedorovsky. Experimental Investigation of Granite and Limestone Fracture under Impact Pulse and Static Loading

17:10 – 17:30 V.N. Kukudzhinov. Rheological Instability and Fracture of Elastoplastic Specimens under Tension

17:30 – 17:50 D.A. Indeitsev, N.F. Morozov, V.N. Naumov, E.I. Prokuratova. The Temperature Impact at the End of the Rod of Complicated Structure

17:50 – 18:10 A.V. Kashtanov, Y.V. Petrov. Kinetic Nature of the Incubation Time

18:10 – 18:30 R.A. Arutyunyan. Fatigue Fracture in the Gigacycle Regime generalized

Room B

E U R O M E C H COLLOQUIUM 468

“MULTI-SCALE MODELLING IN THE MECHANICS OF SOLIDS”

JULY 1, FRIDAY

Room A

Morning Session

CHAIRMAN V.A. EREMEYEV

9:30 – 10:10 E.V. Lomakin, H.-J. Christ. Deformation of Elastic Material with Stress-State-Dependent Properties at the Crack Tip under Longitudinal Shear Conditions
10:10 – 10:50 D.A. Indeitsev. Influence of the Kinetics of Processes on the Behavior of Thin Structures in a Continuous Medium
10:50 – 11:30 G.A. Leonov. Stability and Oscillation of Systems with Cylindrical Phase Space

Break

Minisymposium “Biomechanics and Mechatronics”

CO-CHAIRMEN H. IRSCHIK, A.K. BELYAEV, YU.I. NYASHIN

11:40 – 12:10 H. Irschik. Non-Classical Terms in the Equations of Balance for a Growing Body
12:10 – 12:40 M. Stangl, N. Beliaev, A.K. Belyaev, H. Irschik. Applying Lagrange Equations and Hamilton Principle to Vibrations of Fluid Conveying Pipes

Coffee break

13:00 – 13:30 Yu.M. Vetyukov, V.V. Eliseev. The Lagrangian Mechanics of Elastic Shells and Its Numerical Application
13:30 – 14:00 D. Okhotsimsky, O. Nikitin, Y. Gerasimenko, N. Serbenjuk, L. Mitutsova, K. Delchev, V. Vitkov, A. Platonov, V.Yaroshevsky. A Biomechanical Stimulator for Scientific-experimental Study of the Regeneration of Spinal Cord Locomotion Capabilities after Traumatic Break

Evening Session

15:30 – 16:00 Yu. Nyashin, E. Simanovskaya, V. Tverier. Maxillofacial System as a Specialized Biomechanical System
16:00 – 16:30 V. Lokhov, Yu. Nyashin. Application of the Stress and Strain Control by Eigenstrain to Biomechanical Systems

Coffee break

16:50 – 17:20 Yu.V. Akulich, R.M. Podgayets, A.I. Kholkina. Quasi-static Analysis of the Muscular Efforts and Joint Reaction Forces during the Lower Extremity Movement in the Training Machine with Weights
17:20 – 17:50 A. Anoshkin, D. Ivanov, S. Ivanov, Yu. Osorgin, A. Tashkinov, P. Udintsev, Yu. Zmeev. Problems of Strength Evaluation of Carbon-Carbon Hip Prostheses
17:50 – 18:20 V.V. Potekhin, A.V. Zinkovsky, L.B. Maslov, V.I. Shapin, S.E. Lvov, E.V. Bleskin. Forced Vibration Technology for Non-destructive Testing in Orthopaedy
18:20 – 18:50 A.G. Soldatos, K.G. Arvanitis, S. Papathanassiou, A. Kladas. Control for Vibration Attenuation in Variable Speed Wind Turbines

Room B

E U R O M E C H COLLOQUIUM 468

“MULTI-SCALE MODELLING IN THE MECHANICS OF SOLIDS”

JULY 3, SUNDAY

Room A

Morning Session

CHAIRMAN I.I. BLEKHMEN

9:30 – 10:10 D. Harris. Granular Flow: a New Plasticity Model Containing a Length Scale

10:10 – 10:50 C. Vallée, S. Charlesm, S.Ya. Stepanov, A.A. Burov. On Time Domain Identification Method for Linear Oscillation Mechanical Systems

Break

CHAIRMAN A.M. KRIVTSOV

Computational Mechanics

11:00 – 11:20 V.P. Fedotov, L.F. Spevak, V.B. Trukhin, V.V. Privalova. A Numerical-Analytical Technique for Solving Problems of Mathematical Physics

11:20 – 11:40 A. Smolianski, O. Shipilova, H. Haario. Particle Transport Method for convection-reaction problems

11:40 – 12:00 N. Loguinova. Oscillations in a Hardsphere Model under Gravity

Coffee break

12:20 – 12:40 V.A. Bratov, P. Stähle. Viscous Cohesive Zone Model for Fracture under Rapid Loading

12:40 – 13:00 V.F. Koshelev, A.M. Linkov. On Numerical Implementation of Non-local Fracture Criterion to Inhomogeneous Media

13:00 – 13:20 A.B. Kiselev, O.V. Nekhaeva. Computational Simulation of Irreversible Dynamic Deforming and Fracture of Damageable Solids and Structures

13:20 – 13:40 I.I. Kossenko. An Analysis of the Computer Model for the Unilateral Multibody Systems Dynamics

13:40 – 14:00 R. Crouch, T. Li. On the Use of Auxillary Surfaces in Computational Plasticity Return Mapping

Evening Session

15:15 – 16:45 Posters (PS1)

Break

17:15 – 18:45 Posters (PS2)

Room B

Morning Session

CHAIRMAN E.F. GREKOVA

Mechanics of Generalized Continua

11:00 – 11:20 V.A. Eremeyev, A.N. Soloviev. On Elastic Micro- and Nano-Crystals Lattices Modelling

11:20 – 11:40 I. Smolin. Cosserat Continuum as a Model of Mesoscale

11:40 – 12:00 A. Valance, C. Pascot, R. Delannay. Shear Instabilities in Granular Mixtures under Gravity

Coffee break

12:20 – 12:50 E.L. Aero, A.N. Buliguin. Nonlinear Theory of Cardinal Rearrangement of Solid Structure under Catastrophic Deformations

12:50 – 13:10 J.M. Nitsche, T.-F. Wang, G.B. Kasting. Micromechanics of Molecular Diffusion through Multiscale “Brick-and-Mortar” Composite Materials, with Application to the Permeability of Human Skin

13:10 – 13:30 T. Chen, H.-Y. Kuo. Exact Correspondences between N -dimensional Anisotropic and Isotropic Green’s Functions in Conductions

JULY 4, MONDAY

Room A

Morning Session

CHAIRMAN P.A. ZHILIN

9:30 – 10:10 G.M.L. Gladwell. Inverse Problems in Vibration — Past, Present and Future

10:10 – 10:50 I.I. Blekhman, L.A. Vaisberg. Adaptive Properties of Dynamic Objects
Break

Minisymposium “Nonlinear Methods and Integrable Models in Mechanics”

CO-CHAIRMEN N.A. KUDRYASHOV, A.V. PORUBOV

11:00 – 11:30 M.L. Gandarias. Nonclassical Potential Symmetries for Some Diffusion Equations

11:30 – 12:00 O.V. Nagornov, Yu.V. Konovalov. Modelling of Ice Flow of Glaciers Subjected to Climatic Changes

Coffee break

12:20 – 12:50 A.V. Borisov, I.S. Mamaev. Dynamics of a Circular Cylinder Interacting with Point Vortices

12:50 – 13:20 M. Hirayama, K. Ogawa. Non-linear Dynamic Behaviors of the Glider Balloon; the Newly Developed Ballooning

13:20 – 13:50 A.V. Porubov, I.V. Lavrenov. Formation of the Rogue Waves and Holes in Ocean

Evening Session

15:30 – 16:00 N.A. Kudryashov. Nonlinear Heat Equations: Fifty Years Later

16:00 – 16:30 H. Tsuji, M. Oikawa. Nonlinear Internal Waves Generated by Topography in a Stratified Fluid

Coffee break

16:50 – 17:20 E.Yu. Malyuta, M.M. Bogdan. Stability of Gap Soliton Modes in Modulated Nanoclusters

17:20 – 17:40 M.A. Chmykhov, N.A. Kudryashov. Analytical and Numerical Solutions of Smog Propagation Problems

17:40 – 18:00 I.L. Chernyavsky, N.A. Kudryashov. System of Equations for Nonlinear Pressure Waves in a Viscoelastic Vessel

18:00 – 18:20 O.Yu. Efimova, N.A. Kudryashov. Two Reaction-Diffusion Models Describing the Evolution of Interrelated Populations

Room B

Morning Session

CHAIRMAN I.I. BLEKHMAN

Nonlinear Dynamics and Vibration

11:00 – 11:20 A. Dabrowski. Energy Flow and Synchronization in the Energy Space

11:20 – 11:40 I.V. Barmin, M.V. Veselov, Y.M. Epifanov. Cable Mast Dynamics of Moving with Account of Its Flexural Vibrations

11:40 – 12:00 H. Mahbadi, M.R. Eslami, M. Kamran. Analysis of Rotating Disks Under Cyclic Thermal and Mechanical Loads

Coffee break

Evening Session

CHAIRMAN S.N. GAVRILOV

Solids and Structures

15:30 – 15:50 M.F. Ghanameh, D. Thevenet, A. Zeghloul. Effects of Joint Configuration and Loading Type on Stress Concentration in Offshore Welded Tubular Joints

15:50 – 16:10 S.H. Sargsyan, A.J. Farmanyan, M.N. Mutafyan, S.A. Vardanyan. Some Problems of Statics, Thermoelasticity and Dynamics of Micropolar Bars

16:10 – 16:30 A.I. Oleinikov. Anisotropic Elasto-Visco-Plasticity of Aluminum Alloy

Coffee break

16:50 – 17:10 E.I. Ryzhak. An Idea and Theory of Shear Device for Investigating the Localization Phenomena

17:10 – 17:30 A.I. Khromov, A.A. Bukhanko, S.L. Stepanov. Deformations Concentrators and Fracture of Plastic Bodies

17:30 – 17:50 G. Kostin, V. Saurin. Integro-differential Approach in the Linear Theory of Elasticity

17:50 – 18:10 M. Benabdoun, T. Dorbani, S. Hamamda, I. Zerrouk. Dilatometric and Calorimetric Study of an Al-Mg-Zn Alloy

JULY 5, TUESDAY

Room A

Morning Session

CHAIRMAN D.A. INDEITSEV

Room B

10:00–12:30 **ROUND TABLE. CLOSING CEREMONY**