

JUNE 25, SUNDAY

Room A

Morning Session

CHAIRPERSON D.A. INDEITSEV

10:00–10:30 OPENING CEREMONY

10:30–12:00 SESSION DEVOTED TO MEMORY OF P.A.ZHILIN

Coffee break

12:20–14:00 SESSION DEVOTED TO MEMORY OF P.A.ZHILIN

Evening Session

15:30–16:30 SESSION DEVOTED TO MEMORY OF P.A.ZHILIN

Break

16:40–18:00 SESSION DEVOTED TO MEMORY OF P.A.ZHILIN (ROUND TABLE)

Room B

JUNE 26, MONDAY

Room A

Morning Session

CHAIRPERSON A.M. KRIVTSOV

- 9:30–10:10 X. Xu, M. Wiercigroch, E. Pavlovskaya, S. Lenci, F. Romeo, M.N. Cherri.** Dynamics of Parametric Pendulum for Wave Energy Extraction
10:10–10:50 N.F. Morozov, R.V. Goldshtein. Advances in nanomechanics at the Russian Academy of Sciences (mechanical division) 2004-2005
10:50–11:30 I.G. Goryacheva. Friction in Rolling Contact of Deformable Bodies

Coffee break

Minisymposium “Nonlinear Dynamics of Engineering Systems”

CO-CHAIRPERSONS E. PAVLOVSKAYA, M. WIERCIGROCH

- 11:50–12:20 L.I. Manevitch, V.V. Smirnov, N.N. Balabaev, M.A. Mazo, K.Yu. Kovsevich.** Discrete breathers in nonlinear dynamics of planar zigzag oscillatory chain and carbon nanotube
12:20–12:50 E. Pavlovskaya, J. Ing, M. Wiercigroch. Reduction of multidimensional flow to low dimensional map for piecewise smooth oscillators
12:50–13:20 M. Zakrzhevsky, R. Smirnova. Paradoxes of Nonlinear Damping in the Linear Dynamical Systems
13:20–13:50 M. Zakrzhevsky. The Fundamentals of the Theory of Nonlinear Oscillations. The New Concepts and Old Delusions

Evening Session

Minisymposium “Nonlinear Dynamics of Engineering Systems”

CO-CHAIRPERSONS E. PAVLOVSKAYA, M. WIERCIGROCH

- 15:30–16:00 A.P. Seyranian.** On classical parametric resonance problems
16:00–16:30 T. Gould, C. Wang, D. Combes. Cosserat modelling of flexible ring structures
16:30–17:00 H. Ishio. Transition from Quantum to Classical Transport through Chaotic Open Cavities

Coffee break

- 17:20–17:50 G.V. Kostin.** Time Optimal Control of Mechanical Systems with Dry Friction under Harmonic Disturbances
17:50–18:20 A. Polishchuk. Interconnected spatial vibrations of helical springs
18:20–18:50 R.A. Morrison. Stability Analysis of the Helmholtz Oscillator with Time Varying Mass

Room B

Morning Session

CHAIRPERSON A.D. SERGEEV

Solids and structures

- 11:50–12:10 A.G. Knyazeva.** Coupling model of surface admixture redistribution at the condition of one-axis mechanical loading
12:10–12:30 N.Y. Nikitina. Investigation of stressed states of pipelines by acoustoelastic method
12:30–12:50 S. Sargsyan. Dynamic Problem of Thin Plates on the basis of Asymmetric Theory of Elasticity

Break

- 13:00–13:20 N.A. Konchakova.** The investigation of the irreversible strain and damage in the brittle fracture materials
13:20–13:40 E.L. Starostin. Modelling elastic bands: from an anisotropic rod to a developable shell
13:40–14:00 N.G. Dvas. Stability of plain tetratomic system

Evening Session

CHAIRPERSON V.A. EREMEEV

Phase transitions

- 15:40–16:00 H. Zapolsky, N. Lecoq, R. Patte.** Numerical simulation of phase transition in Ni-based alloys
16:00–16:20 A.B. Freidin, E.N. Vilchevskaya, L.L. Sharipova, M.A. Antimonov. New phase nucleation at the initial stage of stress-induced phase transformations
16:20–16:40 S.N. Gavrilov, E.V. Shishkina. On the extension of a rod capable to undergo phase transitions
16:40–17:00 S. Tokarzewski. Bounds on effective transport coefficients from complex input data

Coffee break

- 17:20–17:40 K.L. Muratkov, A.L. Glazov, V.I. Nikolaev, S.A. Pul'nev.** Imaging of structural phase transitions in monocrystals of Cu-Al-Ni with shape memory effect by photoacoustic thermoelastic microscopy
17:40–18:00 W. Zaki, Z. Moumni. Modeling of thermomechanical behavior and fatigue of shape memory
18:00–18:20 V.F. Kuropatenko. Hydromechanics of Multicomponent Multiphase Compressible Media
18:20–18:40 A.G. Knyazeva, S.G. Psakhie, A.V. Tyan. Mass transfer at the nonequilibrium conditions of surface high-energy treatment

JUNE 27, TUESDAY

Room A

Morning Session

CHAIRPERSON E.F. GREKOVA

- 9:30–10:10 H. Bremer.** Flexible mechanism dynamics
10:10–10:50 A.K. Belyaev. A benchmark study of three approaches to waves in randomly heterogeneous elastic media

Break

Minisymposium “Fatigue of Engineering Structures”

CO-CHAIRPERSONS B. UNGER, A.K. BELYAEV

- 11:00–11:30 H. Leitner, W. Eichlseder.** Interaction between surface condition and fatigue life
11:30–12:00 B. Unger. Application of Virtual Methods for the Optimization of Dynamic Loaded Structures

Coffee break

- 12:20–12:50 F. Grün, I. Gódor, W. Eichlseder.** Tribological Studies on Sliding Bearings on the Basis of Damage Analysis
12:50–13:20 I. Gódor, Z. Major, W. Eichlseder, A. Leitgeb, F. Grün. Development of a tribological functional and failure model for PTFE-Bz Compounds
13:20–13:50 S.V. Petinov. Fatigue Analysis of Ship Structures: Application of “Strain-Life” Criterion

Evening Session

Minisymposium “Fatigue of Engineering Structures”

CO-CHAIRPERSONS W. EICHLSEDER, S.V. PETINOV

- 15:15–15:40 B.E. Melnikov.** Modeling fatigue crack propagation by means of continuum damage mechanics and non-local criteria.
15:40–16:05 A.M. Polyanskii, V.A. Polyanskii. Study of changes in the bond energy of hydrogen in metals under thermomechanic loading
16:05–16:30 M.F. Ghanameh. Finite element investigation of unreinforced welded tubular joints

Coffee break

- 16:50–17:20 I.K. Korolev, A.B. Freidin, E.N. Vilchevskaya.** Modeling an interaction between a phase transforming inclusion and a fatigue crack
17:20–17:50 S.V. Bobilev, N.F. Morozov, I.A. Ovid’ko and A.G. Sheinermano. Nucleation and evolution of nanovoids in polysilicon at quasistatic and fatigue load regimes
17:50–18:20 A.M. Krivtsov. MD modeling of low-cycle high-amplitude loading of monocrystal material with defects
18:20–18:50 E.L. Aero, A.N. Bulygin. Microscopic theory of degradation of properties of crystalline material under vibrocreep

Room B

Morning Session

Minisymposium “Nonlinear Waves in Mechanical Systems”

CO-CHAIRPERSONS A.V. PORUBOV, V.I. EROFEEV

- 11:00–11:30 Chardard, Dias, Bridges.** On the stability of solitary waves
11:30–12:00 A.B. Ezersky, V.O. Afenchenko, S.V. Kiyashko, A.V. Nazarovskiy. Spatio-temporal Dynamics of Bound States in Faraday Ripples: experiments and numerical simulations

Coffee break

- 12:20–12:50 A. Stulov.** Mathematical models of sound generation mechanisms in grand piano
12:50–13:20 V.I. Erofeyev, A.V. Sharabanova. Elastic shear waves in bimodal materials
13:20–13:50 A.V. Porubov. On derivation of model equations for nonlinear strain waves in wave guides

Evening Session

CHAIRPERSON A.V. ZAITSEV

Computational mechanics

- 15:30–15:50 V.P. Fedotov, L.F. Spevak, V.V. Privalova, V.B. Trukhin.** Solving two- and three-dimensional elastic problems by modified boundary element method
15:50–16:10 D. Savescu. About new ball-bearings used in mechanical transmissions
16:10–16:30 G. Filippenko. On the free vibration of the cylinder shell partially protruding above the surface of the liquid

Coffee break

- 16:50–17:10 M. Brigante, A.V. Nasedkin, M.A. Sumbatyan.** Testing of Viscoelastic Constructions: Modeling by FEM
17:10–17:30 G. Partheepan, D.K. Sehgal, R.K. Pandey. Determination of tensile properties of Chromium hotwork steel using inverse FEM and miniature test
17:30–17:50 I.A. Brigadnov. Computer simulation of sandwich sheet metal forming
17:50–18:10 Ghannadi-Asl Amin, Noorzad Asadollah. Trefftz Boundary Method for Thick Plate Bending Problems

JUNE 28, WEDNESDAY

Room A

Morning Session

CHAIRPERSON A.B. FREIDIN

9:30–10:10 A.I. Borovkov, V.A. Palmov. New approach in the mechanics of periodic composites

10:10–10:50 A. Metrikine. Wave Mechanics of Structures and Structural Materials

10:50–11:30 M.P. Cartmell, M.C. D'Arrigo, D.J. McKenzie, Y. Wang. Approximate Analytical Solution for a Motorised Momentum Exchange Tether on a Circular Earth Orbit

Coffee break

Minisymposium "Aerospace Minisymposium"

CHAIRPERSON M. CARTMELL

11:50–12:20 G. Radice. Spacecraft formation control at Sun-Earth L2 point

12:20–12:50 D. McKenzie, M. Cartmell. Dynamics of Orbital Space Tethers

12:50–13:20 A.A. Le-Zacharov, I. Volkovets. Simulation of Gravitational Systems by Particle Method

13:20–13:50 G. Jayanthi, P. Alagusundaramoorthy. Finite Element Analysis of Open Isogrid Structures

Evening Session

CHAIRPERSON

15:30–16:10 E.V. Lomakin, B.N. Fedulov. Deformation and limit state of solids with stress state dependent plastic properties

Break

Minisymposium "Stochastic Methods in Mechanics"

CHAIRPERSON S. FEDOTOV

16:20–16:50 V. Mendez, S. Fedotov. Front propagation in reaction-random walks processes

16:50–17:20 S. Fedotov, I. Bashkirtseva, L. Ryashko. Stochastic Non-Normal Dynamical System for Subcritical Transition

Coffee break

17:40–18:10 A.A. Burluka. Closed equation for two-point pdf in mechanics of turbulence

18:10–18:40 Mandeep S. Sidhu, A.A. Burluka. Vaporisation rate in two-phase turbulent flows

Room B

Morning Session

CHAIRPERSON A.S. KULESHOV

Civil engineering

11:50–12:10 W. Lu, P. Makelainen. Fuzzy Genetic Algorithms for Design of Cold-Formed Steel Sheeting

12:10–12:30 A.K. Abramyan. On the free vibrations of an oscillator with a periodically time-varying mass

12:30–12:50 L.M. Yufereva, P.N. Kot, Yu.A. Lavrov. Influence of an annular plate on free oscillations of a spherical acoustical resonator

CHAIRPERSON A.S. KULESHOV

Fluid and Gas

12:50–13:10 N.V. Nikitin. Direct numerical simulation of turbulent wall-bounded flows: approaches, methods and results

13:10–13:30 A.G. Bagdov, A.V. Shekoyan. The wave in gas-fluid mixture

13:30–13:50 Yu.A. Ustinov. Mathematical modeling blood motion in the arterial muscle vessels.

Evening Session

CHAIRPERSON S.N. GAVRILOV

Solids and Structures

16:20–16:40 R.A. Arutyunyan. The description of deformation aging of polymers by means of modified Maxwell and Kelvin-voight materials

16:40–17:00 A.V. Zaitsev, Ya.K. Pokataev. Probabilistic methods for the analysis of random-structured fibre-reinforced composites

17:00–17:20 P. Dyatlova, E. Polyakova, V. Chaikin. Constitutive equations for soft shells with network microstructures

Coffee break

17:40–18:00 M. Bournane, Y. Sadaoui, M. Nedjar. Elasticity and internal friction of Al7SiMg hypoeutectic alloy

18:00–18:20 S.G. Ivanov. A sight at multilevel models for the design of composite laminate structures

18:20–18:40 N. Kizilova. Interaction of the steady flow of a viscous liquid with a multilayered viscoelastic wall

JUNE 29, THURSDAY

Room A

Morning Session

CHAIRPERSON V.A. EREMEYEV

9:30–10:10 H. Altenbach. Advanced Engineering Creep Analysis of Thin-walled Structural Elements

10:10–10:50 Y. Dzenis. Nanomanufacturing and Mechanics of Advanced Continuous Nanofibers

Break

Minisymposium “Advances in Nanomechanics”

CHAIRPERSON A.M. KRIVTSOV, N.F. MOROZOV

11:00–11:30 S. Lurie, P. Belov, D. Volkov-Bogorodskii, N. Tuckova. Theory of the interfacial interactions as particular variant of the theory for continuous media with kept dislocations

11:30–12:00 V.A. Eremeev, S.E. Strochkov. On the FEM modelling of nanofilm helical coil

Coffee break

12:20–12:50 Yu.L. Raikher, V.V. Rusakov. Diffusional and magnetic rotary microrheology

12:50–13:20 S. Nath. The Rotation-Uncoiling-Twist Energy Storage Mechanism of Muscle Contraction

13:20–13:50 M.A. Mazo. Elastic properties of clay nanoparticles via Molecular Dynamics Simulation

Room B

Morning Session

CHAIRPERSON I.I. BLEHMAN

Nonlinear dynamics, chaos and vibration

11:00–11:20 E.V. Shishkina, M. Cartmell. On the behaviour of elastic plates under vibrational excitation

11:20–11:40 A.S. Kuleshov. On a various mathematical models of a skateboard motion

11:40–12:00 I.A. Pasynkova. Cylindrical precessions of an unbalanced flexible rotor supported in nonlinear elastic bearings

Coffee break

12:20–12:40 A.G. Bagdov A.V. Shekoyan. The derivation of general equation for solid-electroconvulsive fluid media and waves in them

12:40–13:00 A.L. Shvygin. On the stability of pendulum motions of a gyrostate

13:00–13:20 A.A. Burov. Regular and chaotic dynamics of the orbital pendulum with the vibrating point of suspension

Evening Session

15:30–17:00 Posters (PS1)

Coffee break

17:20–18:50 Posters (PS2)

JUNE 30, FRIDAY

Room A

Morning Session

CHAIRPERSON E.F. GREKOVA

9:30 – 10:10 L.Yu. Kossovich. Hyperbolic Interfaces in Composite Shells Under Front Impacts

10:10 – 10:50 D. Harris. Two-phase Fast Granular Flow: Some Issues and Problems

10:50 – 11:30 J.D. Goddard. A general theory for the viscoplasticity of dry and fluid-saturated granular media

Break

CHAIRPERSON D. HARRIS

Mechanics of generalized continua

11:40 – 12:00 A. Castellanos, J.M. Valverde. Fluidization regimes of fine and ultra-fine powders

12:00 – 12:20 M.A. Kulesh, E.F. Grekova, I.N. Shardakov. Rayleigh waves in the isotropic and linear, reduced Cosserat continuum

Coffee break

12:40 – 13:00 Yi-chao Chen. Stability of Elastic Films in Proximity to a Rigid Plate

13:00 – 13:20 J. Nitsche. Brownian Dynamics of Continuous Deformable Macromolecular Models in Shear Flow

13:20 – 13:40 A.L. Svistkov. Structural-phenomenological model of heterogeneous medium

Evening Session

CHAIRPERSON A.D. SERGEEV

15:30 – 16:10 V.V. Beletsky. General limited circular three-body problem as a model for dynamics of double asteroids

16:10 – 16:50 Ya-Pu Zhao. Surface and size effects in MEMS/NEMS and hybrid QM/MM simulation

Coffee break

CHAIRPERSON A.D. SERGEEV

Solids and Structures

17:10 – 17:30 V.I. Astafiev. Damage Accumulation and Crack Growth in Metals under Hydrogen Embrittlement

17:30 – 17:50 Z.A. Valisheva, N.B. Vovnenko, B.A. Zimin, U.B. Sudenkov. Non-equilibrium processes influence on dynamic response in metals

17:50 – 18:10 B.N. Semenov, Yu.V. Sudenkov, D.A. Yungmeister, A.Y. Burak. An investigation of the process of percussive impulse formation and transference in the three bodies system

Break

18:20 – 18:40 CLOSING CEREMONY

Room B