PROGRAMME

INTERNATIONAL SUMMER SCHOOL
CONFERENCE ADVANCED PROBLEMS
IN MECHANICS

St. Petersburg 2022

POLYTECH
Peter the Great
St. Petersburg Polytechnic
University

Russian Academy of Sciences

РОССИЙСКАЯ АКАДЕМИЯ НАУК

МИНИСТЕРСТВО НАУКИ
И ВЫСШЕГО ОБРАЗОВАНИЯ
РОССИЙСКОЙ ФЕДЕРАЦИИ

ГАЗПРОМ | Научно-
технический центр

June 20			
12:00 - 14:00	***Registration***		Hall
13:00 - 14:00	***Welcome Coffee-break***		***Winter Garden***
Chairman *Krivtsov Anton*	**Plenary lectures**		ROOM A
Link: https://us02web.zoom.us/j/81267116642?pwd=UmtJS1hEL05JZ0xQYWpwc2dsVWlnUT09 **ZOOM ID** 812 6711 6642 **Password:** 495673			
14:00 - 14:45	***Opening ceremony***		
14:45 - 15:20	Babeshko Vladimir	Universal modeling method in the differential and integral equations of continuous media	
15:20- 15:55	Chernousko Felix	Reorientation of a rigid body by means of auxiliary movable masses	
15:55 - 16:30	Gaifullin Alexandr	Problems of vortex fluid dynamics	

June 21			
8:45 - 9:00	***Registration***		Hall
Chairman *Krivtsov Anton*	**Plenary lectures**		ROOM A
Link: https://us02web.zoom.us/j/81267116642?pwd=UmtJS1hEL05JZ0xQYWpwc2dsVWlnUT09 **ZOOM ID** 812 6711 6642 **Password:** 495673			
9:00 - 9:35	Goryacheva Irina	Modeling the contact interaction of a medical instrument with biological tissues.	
9:35 - 10:10	Polyanskii Vladimir	Some mechanical models of the influence of surface phenomena on the strength of materials	
10:10 - 10:45	Altenbach Holm	Plate and shell theories and Zhilin's special view of them	online
10:45 - 11:20	Smirnov Nickolay	Space flight safety in low Earth orbits	
11:20 - 11:35	***Coffee-break***		***Winter Garden***
11:35 - 12:10	Herbert Huppert	How to defend against tsunamis	online
12:10 - 12:45	Akhatov Iskander	Fluid dynamics of dispersed systems: fundamentals and applications	
12:45 - 13:20	Freidin Alexander	Kinetics and stability of chemical reaction fronts in solids within a chemical affinity tensor framework	

13:20 - 14:00	***Lunch***	***Canteen***

Chairman *Kuzkin Vitaly*	**Minisymposium "Mathematical modeling in petroleum engineering"**	ROOM B
Link: https://us02web.zoom.us/j/83186163460?pwd=NjNNbENYaEMzNXVpMS9hYUdiY2ZlQT09 **ZOOM ID** 831 8616 3460 **Password:** 292441		
14:00 - 14:30	Karev Vladimir	Determination of parameters of a model of mechanical properties of high permeability reservoirs of gas fields
14:30 - 14:55	Afanasyev Andrey	Scaling analysis for a 3-D CO2 plume in a sloping aquifer at a late stage of injection
14:55 - 15:20	Andreeva Anna	Influence of oil composition on the optimal strategies of CO2 injection into oil reservoirs
15:20 - 15:45	Shel Egor	Analytical solutuions for water injection-induced hydrualic fracturing
15:45 - 16:10	Chernova Anna	The influence of the gravity override on optimal water-alternating-gas strategies
16:10 - 16:25	***Coffee-break***	***Winter Garden***
16:25 - 16:50	Tsykunov Oleg	Modeling of Water Huff and Puff Technology in a Low Permeability Oilfield
16:50 - 17:15	Novikova Elena	Investigation of the back-stress impact on the breakdown pressure of the hydraulic fracture
17:15 - 17:40	Poroshin Iliya	Applying of numerical-analytical methods to calculate the pressure field in a heterogeneous reservoir
17:40 - 18:05	Pashkin Vsevolod	A Computer Software Package for Sand Production Modelling
18:05 - 18:30	Kondratenko Fedor	Integrated simulation of the production well stock
18:30 - 18:55	Yurkin Alexander	Cascade model for the hydraulic fracturing prediction based on machine learning methods
18:55 - 19:20	Sokolova Darya	Study of the effect of bridging on the dynamics of auto hydraulic fracture growth

Chairman *Grekova Elena*	**Complex media: micropolar theory, chemomechanics, acoustic metamaterials etc.** **The section is dedicated to the memory of Professor P.A. Zhilin**	ROOM C
Link: https://us02web.zoom.us/j/89824649823?pwd=RjkrMG9laW5oeklTQ3JxaC9NeEQ1QT09 **ZOOM ID** 898 2464 9823 **Password:** 376017		
14:00 - 14:20	Grekova Elena	Reduced Cosserat viscoelastic medium with combined type of viscosity as an acoustic metamaterial
14:20 - 14:40	Grigoreva Polina	Hydrogen diffusion in steels and its mutual influence on the mechanical stress fields
14:40 - 15:00	Drepin Mikhail	Influence of spherical stress state on the wave properties for reduced Kelvin's medium
15:00 - 15:20	Shorkin Vladimir	A variant of the mechanism description for the dielectric heating
15:20 - 15:40	Dudin Dmitry	Interdiffusion Models for Viscoelastic Media
15:40 - 16:00	Solyaev Yury	High-order homogenization approach for evaluation of the length scale parameters of strain gradient elasticity

16:00 - 16:20	***Coffee-break***		***Winter Garden***

Chairman **Fluid mechanics. Part I** ROOM D

Link: https://us02web.zoom.us/j/83350588644?pwd=d0sydUpzYlJObUZsTHd4ZDY5UVpLUT09
ZOOM ID 833 5058 8644
Password: 265936

14:00 - 14:20	Kudryashova Olga	Mathematical model of extrusion in FDM 3D printing technology	
14:20 - 14:40	Izmailova Yulia	Algorithms for flow simulation around movable airfoils in vortex methods	
14:40 - 15:00	Kozhevnikov Evgenii	Changes in the permeability of porous sandstones under cyclic exposure	
15:00 - 15:20	Galeeva Dilara	Modeling of thermoviscous liquid flow in a conical diffuser	
15:20 - 15:40	Sagitov Rafil	Internal convection in a layered air-porous-air system with heat source dependent on solid fraction	online
15:40 - 16:00	Popov Andrey	Performance assessment of a newly developed solver for PFEM-2 method for incompressible flow simulation	online
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Kolganova Alexandra	Verification of the algorithms of vortex methods in the VM2D code for 2D flows simulation	
16:40 - 17:00	Kolchanova Ekaterina	Penetrative convection in N-layered porous medium with thin air interlayers and internal heat source	online
17:00 - 17:20	Rybakin Boris	Study of the formation of superdense matter arising from the collision of giant molecular clouds with the help of heterogeneous computing systems	
17:20 - 17:40	Kolchanov Nikolay	Onset of convection in two-layered sorbing porous medium with clogging under non-isothermal conditions	online
17:40 - 18:00	Marchevsky Ilia	On fast algorithms in Lagrangian vortex methods for vortex particles interaction simulation	
18:00 - 18:20	Bulatova Aiguzel	BEM based approach for numerical simulation of single-phase and multiphase flow in micromodels of porous media	online
18:20 - 18:40	Iulmukhametova Regina	Numerical research of the microemulsion separation dynamics under thermal convection conditions	online
18:40 - 19:00	Torres Tauan	Influence of fluid filtration on the process of formation of a fracture	
19:00 - 19:20	Ogai Vladislav	Research of upward gas-liquid flows with forming agent in a vertical channel	

Chairman **Nano-, micro- and mesomechanics. Part I** ROOM E

Link: https://us02web.zoom.us/j/88033201799?pwd=VkhjOWQyZzMvRThxdU9KN01EbWRxUT09
ZOOM ID 880 3320 1799
Password: 401655

14:00 - 14:20	Dmitriev Andrey	MD Study of the Mechanical Properties of TiAlTaN Coating on a Ti Substrate	
14:20 - 14:40	Petrov Dmitry	Edge dislocation in elastic sphere	
14:40 - 15:00	Chernakov Anton	Strain induced prismatic dislocation loop close to the heterointerface in the hybrid axial nanowire	
15:00 - 15:20	Udalov Pavel	One-dimensional magnetic contactless suspension model	online
15:20 - 15:40	Karamov Radmir	Mechanical properties prediction of composite materials using data-driven models with periodicity reconstruction	
15:40 - 16:00	Bobylev Sergey	Effect of graphene pull-out from ceramic matrix on crack growth resistance of ceramic/graphene composites	
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Riabokon Evgenii	Nonlinear nature of the Young's modulus of rocks under dynamic loading: experimental studies	
16:40 - 17:00	Nikonov Anton	Molecular dynamics simulation of grain deformation in aluminum bronze under shear limiting conditions	
17:00 - 17:20	Gutkin Mikhail	Disclination-based models of fast formation and slow dissolution of pores at grain boundaries during annealing of an ultrafine-grained aluminum alloy	online
17:20 - 17:40	Sargsyan Samvel	Applied problems of static transvers bend, stability and vibrations of a graphene sheet	online
17:40 - 18:00	Atroshenko Svetlana	Evolution of the microstructure of obstacles from FCC alloys under high-velocity impact conditions	online
18:00 - 18:20	Bryukhanov Iliya	Atomistic simulation of shock-induced plasticity and spall fracture in copper single crystals with preexisting dislocation network	
18:20 - 18:40	Izyumov Roman	Mathematical model of nanoindentation in the tapping mode atomic force microscopy in the study of subsurface structures of filled elastomers	

June 22		
9:00 - 9:15	***Registration***	Hall

Chairman *Gavrilov Serge* **Plenary lectures** ROOM A

Link: https://us02web.zoom.us/j/81267116642?pwd=UmtJS1hEL05JZ0xQYWpwc2dsVWlnUT09
ZOOM ID 812 6711 6642
Password: 495673

9:00 - 9:35	Krivtsov Anton	Dynamics of matter and energy The lecture is dedicated to the memory of Professor P.A. Zhilin	

9:35 - 10:10	Politi Antonio	Heat-flux definition revisited and nonlinear temperature-profiles in one dimensional systems	online
10:10 - 10:45	Chen Jie	Computational study on phononic heat conduction in nanostructures	online
10:45 - 11:20	Dmitriev Sergey	Delocalized and localized vibrations in nonlinear lattices	
11:20 - 11:35	***Coffee-break***		***Winter Garden***
11:35 - 12:10	Altenbach Holm on behalf of Zhilin's followers	Some comments on continuum electrodynamics A tribute to St. Petersburg Mechanics and an homage to P.A. Zhilin	online
12:10 - 12:45	Wang Jizeng	Wavelet methods for solving nonlinear mechanical problems	online
12:45 - 13:20	Asaturova Julia Krivtsova Alina	Architectural heritage of Russia Presentation of the photo exhibition and the premiere of the author's film	

13:20 - 14:00	***Lunch***	***Canteen***

Chairman *Kuzkin Vitaly* **Heat/energy transport** ROOM B

Link: https://us02web.zoom.us/j/83186163460?pwd=NjNNbENYaEMzNXVpMS9hYUdiY2ZlQT09
ZOOM ID 831 8616 3460
Password: 292441

14:00 - 14:20	Gavrilov Serge	Unsteady ballistic heat transport in a 1D harmonic crystal due to a source on an isotopic defect	
14:20 - 14:40	Kuzkin Vitaly	Acoustic transparency of interface between dissimilar chains	
14:40 - 15:00	Shcherbinin Stepan	Energy dynamics in the alpha-FPU chain and corresponding continuum systems	
15:00 - 15:20	Falco Alex	Sinusoidal thermal excitation: kinetic and dynamical approaches, effect of dimensionality and dispersion	online
15:20 - 15:40	Liazhkov Sergei	Unsteady two-temperature heat transport in mass-in-mass chains	
15:40 - 16:00	Lykov Alexander	On the recurrence time of kinetic temperature in one-dimensional harmonic crystal	online
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Nets Polina	Simulation of elastic guided wave scattering by localized obstacles with 1D engineering models	
16:40 - 17:00	Gruzdev Igor	Study of the distribution of energy in different chains	
17:00 - 17:20	Murachev Andrei	Numerical and analytical investigation of energy transfer processes in one demensional chains with interface	
17:20 - 17:40	Borisenkov Bogdan	Modeling of wave propagation in composite crystal	

Chairman *Porubov Alexey* **Minisymposium "Nonlinear waves in continuous media"** ROOM C

Link: https://us02web.zoom.us/j/89824649823?pwd=RjkrMG9laW5oeklTQ3JxaC9NeEQ1QT09
ZOOM ID 898 2464 9823
Password: 376017

14:00 - 14:30	Il'Ichev Andrej	Stability of the aneurysm in a membrane tube with localized wall thinning filled with a fluid with a non-constant velocity profile	
14:30 - 14:55	Andrianov Igor	Mathematical Models in Pure and Applied Mathematics	online
14:55 - 15:20	Chetverikov Alexandr	Localized plane soliton-like waves in 2d triangular Morse lattices and cuprate like lattices	online
15:20 - 15:45	Pavlov Yuri	Solving of problem of the Griffith crack propagation based on equations of nonlinear model	online
15:45 - 16:10	Eremeyev Victor	On surface waves in a halfspace with residual surface stresses	online
16:10 - 16:25	***Coffee-break***		***Winter Garden***
16:25 - 16:50	Erofeev Vladimir	Linear and nonlinear plane longitudinal waves in the environment of Slepyan-Palmov	online
16:50 - 17:15	Malkhanov Alexey	Non-sinusoidal waves in a metamaterial, specified as a nonlinear elastic lattice with a center of symmetry	online
17:15 - 17:40	Porubov Alexey	Nonlinear strain solitary waves in a metamaterial	

Chairman **Heat transfer and wave motion** ROOM D

Link: https://us02web.zoom.us/j/83350588644?pwd=d0sydUpzYlJObUZsTHd4ZDY5UVpLUT09
ZOOM ID 833 5058 8644
Password: 265936

14:00 - 14:20	Vareldzhan Mikhail	Hybrid numerical scheme for the simulation of guided wave excitation by a piezoelectric transducer in an elastic substrate	
14:20 - 14:40	Evdokimov Alexandr	Peculiarities of elastic guided wave propagation in fiber-reinforced composite laminates induced by their complex microstructure	online
14:40 - 15:00	Kostin Georgy	Optimal Control of Longitudinal Motions for an Elastic Rod with Distributed Forces	online
15:00 - 15:20	Gavrikov Alexander	Time Optimization of Constrained Control for a Thermoelectric Solid System with a Peltier Element	online
15:20 - 15:40	Mikhalchenko Elena	Modeling a detonation engine using the reduced kinetic mechanism of acetylene	
15:40 - 16:00	Stamov Lyuben	Computer Simulation of Solid Fuel Combustion in Hybrid Engine	
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Shepelev Igor	Compressive solitary wave in black phosphorene	
16:40 - 17:00	Konev Stepan	Effect of strain rate onto compressive properties of unidirectional carbon fiber reinforced plastics	
17:00 - 17:20	Sergeichev Ivan	High strain rate behavior of carbon/epoxy composites subjected to electrical explosion of conductor	

17:20 - 17:40	Zlobina Ekaterina	Tangential short-wave diffraction by a jump of curvature: Alexey Popov's case	
17:40 - 18:00	Bryzgalov Andrey	Numerical simulation of high-temperature subsonic air and nitrogen flows in a high-power RF-plasmatron	online

Chairman *Loboda Olga* **Minisymposium on biomechanics** ROOM E

Link: https://us02web.zoom.us/j/88033201799?pwd=VkhjOWQyZzMvRThxdU9KN01EbWRxUT09 **ZOOM ID** 880 3320 1799 **Password:** 401655			
14:00 - 14:30	Bauer Svetlana	Mathematical models in ophthalmology	
14:30 - 14:55	Ivanov Dmitrii	Biomechanics as the basis of clinical decision support systems in surgery	online
14:55 - 15:20	Karimov Aidar	Mathematical model of autocrine regulation of osteoclasts in bone remodeling	
15:20 - 15:45	Khabibullina Albina	Numerical research on the dependency of the left ventricle pumping function on the miocardium conductivity and the heart rate.	
15:45 - 16:00	Loboda Olga	Three-dimensional (3D) printing technology for medicine	
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:45	Venatovskaya Liudmila	Mathematical simulation of myopia correction using MyoRing implantation	online
16:45 - 17:10	Pautov Anatoly	The influence of folded relief of the guard cell surface on stomatal movements	online
17:10 - 17:25	Tikhomolova Ludmila	Investigation of the branching fluid flow in a blood vessel model with ultrasound high-frame rate vector flow imaging technique	
17:25 - 17:40	Sinitsyna Daria	Numerical study of the influence of vascular bed curvature in the area of the abdominal aortic bifurcation under different cardiac operating modes	

19:00	***Banquet*** ***(transfer from the conference venue at 18:00)***	***LOFT HALL***

June 23		
9:00 - 9:15	***Registration***	Hall

Chairman **Plenary lectures** ROOM A

Link: https://us02web.zoom.us/j/81267116642?pwd=UmtJS1hEL05JZ0xQYWpwc2dsVWlnUT09 **ZOOM ID** 812 6711 6642 **Password:** 495673			
9:15 - 9:50	Yakush Sergey	Explosion Phenomena due to Rapid Phase Transitions	
9:50 - 10:25	Jean-Noël Roux	Model cohesive particle assemblies	
10:25 - 11:00	Romanov Alexei	Disclinations: from elasticity to applications	
11:00 - 11:15	***Coffee-break***		***Winter Garden***
11:15 - 11:50	Khasanov Mars	Modern problems of petroleum engineer mechanics	
11:50 - 12:25	Panin Sergey	Analysis of mechanical hysteresis loops of fiber-reinforced composites based on polyimides by the DIC method	
12:25 - 13:00	Korznikova Elena	Mechanics and nonlinear dynamics of graphene nanoribbons on a substrate	

13:00 - 14:00	***Lunch***	***Canteen***

Chairman *Stepan Shcherbinin* **Nonlinear and multibody dynamics, chaos and vibration** ROOM B

Link: https://us02web.zoom.us/j/83186163460?pwd=NjNNbENYaEMzNXVpMS9hYUdiY2ZlQT09 **ZOOM ID** 831 8616 3460 **Password:** 292441			
14:00 - 14:20	Lobovikov Denis	Testing of programs used in discrete elements method simulation	
14:20 - 14:40	Bukh Andrei	Oscillations excited in interacting FitzHugh-Nagumo neurons due to the delay in the coupling	
14:40 - 15:00	Nachev Victor	The influence of hydraulic fracture opening on the path of acoustic waves	online
15:00 - 15:20	Lukin Aleksei	Nonlinear Modal Interaction Between Longitudinal and Bending Vibrations of a Microbeam Resonator under Periodic Opto-Thermal Excitation	
15:20 - 15:40	Zaitceva Iuliia	Adaptive control of multiple synchronization of two-rotor vibratory machine with tracking of given phase shift between rotors	
15:40 - 16:00	Igumnova Vasilisa	Nonlinear dynamics of a microelectromechanical resonator in the circuits of phase locked loop and automatic gain control systems	online
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Shokhin Alexander	On the use of elastic limiters in two-mass vibrating machines with self-synchronizing inertial vibration exciters	
16:40 - 17:00	Chernyshov Kirill	Tsallis Divergences in the Statistical Linearization of Dynamic Systems	online
17:00 - 17:20	Zhukov Dmitrii	Action of pulsed current on a crack-type defect at the conductor edge	
17:20 - 17:40	Menshenina Alevtina	statistical analysis of chaotic motions of one vibro-impact system	online
17:40 - 18:00	Kiryan Dmitry	On the effect of the central body small deformations on its satellite trajectory in the problem of the two-body gravitational interaction	online

Chairman	*Loboda Olga*	**Phase transitions and nonlinear elasticity**	ROOM C
Link: https://us02web.zoom.us/j/89824649823?pwd=RjkrMG9laW5oeklTQ3JxaC9NeEQ1QT09 **ZOOM ID** 898 2464 9823 **Password:** 376017			
14:00 - 14:20	Vukolov Egor	Calculation of curvature variation on heating of a two-layered plate with shape memory alloy and elastoplastic material layers after preliminary bending or tension	online
14:20 - 14:40	Magazinov Sergey	Uniaxial high strain rate tension method using pulsed magnetic pressure	
14:40 - 15:00	Knyazeva Anna	A two-level approach to describing the process of composite synthesis	online
15:00 - 15:20	Malkova Yulia	Nonlinear deformation of a plane with a rigid elliptical inclusion loaded by force and moment	online
15:20 - 15:40	Volkov Grigory	Fracture and phase transformations in continuums under dynamic actions	
15:40 - 16:00	Fedorovsky Georgy	Effective chrono-physical-mathematical modeling of determining functional properties homogeneous and heterogeneous rheologically simple and complex media. Rapid tests for prediction of long-term properties	online
16:00 - 16:20		***Coffee-break***	***Winter Garden***
16:20 - 16:40	Adiguzel Osman	Hard Phase and Soft Phase Reactions in Memory Behaviour of Shape Memory Alloys	online
16:40 - 17:00	Evard Margarita	Martensitic transformations and mechanical behavior of TiZr and TiZrNb shape memory alloys	online
17:00 - 17:20	Tretyakova Tatyana	Estimation of the influence load history on the Portevin-Le Chatelier effect in Al-Mg alloy	
17:20 - 17:40	Volgin Oleg	Constitutive modeling of 3D-printed thermo-induced shape memory polymers	online

Chairman		**Fluid mechanics. Part II**	ROOM D
Link: https://us02web.zoom.us/j/83350588644?pwd=d0sydUpzYlJObUZsTHd4ZDY5UVpLUT09 **ZOOM ID** 833 5058 8644 **Password:** 265936			
14:00 - 14:20	Mukhutdinova Aygul	Influence of heat exchange on the hydrodynamics parameters of anomalous thermoviscous liquid flow in an annular channel	
14:20 - 14:40	Sidorov Aleksandr	Heat and mass transfer in a plane horizontal layer of fibrous porous medium with low thermal conductivity and internal heat source	online
14:40 - 15:00	Obraztsov Nikita	Hybrid modeling of gas-dynamic processes in AC plasma torches	
15:00 - 15:20	Karpunin Ivan	Oscillatory dynamics of liquid-liquid interface in radial Hele–Shaw cell	
15:20 - 15:40	Fortova Svetlana	Direct numerical simulation of the two-dimensional coherent vortex in a viscous media	online
15:40 - 16:00	Boyarskikh Kseniya	Waves of shock compression and isentropic expansion in refractory metals near the region of the liquid–vapor phase transition	
16:00 - 16:10		***Coffee-break***	***Winter Garden***
16:10 - 16:30	Mankov Elisei	Peculiarities of numerical simulation of natural convection in horizontally based plate-fin heat sinks	
16:30 - 16:50	Valiullina Vilena	Experimental investigation of a model emulsion delamination in the cell heated from above	online
16:50 - 17:10	Kazina Lily	Numerical simulation of gas and water filtration in micromodels of porous medium	
17:10 - 17:30	Markov Anatoly	An open-access software for the calculation of effective elastic and conductive properties of elastic media. Application to a case study of a reservoir rock sample	online

Chairman	*Pashkovsky Dmitry*	**Nano-, micro- and mesomechanics. Part II**	ROOM E
Link: https://us02web.zoom.us/j/88033201799?pwd=VkhjOWQyZzMvRThxdU9KN01EbWRxUT09 **ZOOM ID** 880 3320 1799 **Password:** 401655			
14:00 - 14:20	Smirnov Andrei	Modeling of threading dislocation density reduction in AlN/Al2O3 heterostructure with transition region	
14:20 - 14:40	Nasedkin Andrey	Numerical investigation of cymbal transducer from porous piezoceramics with metallized pore surfaces	online
14:40 - 15:00	Pashkovsky Dmitry	Effective diffusivity of a polycrystalline material with ellipsoidal inhomogeneities	
15:00 - 15:20	Khramov Andrey	Misfit stress in core-shell nanowires with diffuse interface	online
15:20 - 15:40	Krasnitckii Stanislav	Void evolution kinetics driven by residual stress in icosahedral particles	
15:40 - 16:00	Krylova Ekaterina	Nonlinear dynamics of meshed nanoplate taking into account self-heating	online
16:00 - 16:20		***Coffee-break***	***Winter Garden***
16:20 - 16:40	Sheinerman Alexander	Mechanisms of strength of metal alloys with grain boundary segregations	
16:40 - 17:00	Gudkina Zhanna	Misfit stresses due to a cylindrical dilatational inclusion of annular-sector cross-section	online
17:00 - 17:20	Rozhkov Mikhail	Molecular dynamics simulation of mechanical behavior of YSZ ceramics/graphene nanocomposites	online

Chairman		**Plenary lectures**	ROOM D
Link: https://us02web.zoom.us/j/83350588644?pwd=d0sydUpzYlJObUZsTHd4ZDY5UVpLUT09 **ZOOM ID** 833 5058 8644 **Password:** 265936			
17:50 - 18:25	Kachanov Mark	Computational aspects of closing the gap between mechanics and materials science	online
18:25 - 19:00	Samuel Huberman	On the different regimes of phonon transport	online

June 24			
9:00 - 9:15	***Registration***		Hall

Chairman	*Loboda Olga*	**Plenary lectures**	ROOM A
Link: https://us02web.zoom.us/j/81267116642?pwd=UmtJS1hEL05JZ0xQYWpwc2dsVWlnUT09 **ZOOM ID** 812 6711 6642 **Password:** 495673			
9:15 - 9:50	Sergey Lurie	New method for reducing any Mindlin-type secondary gradient elasticity to two-parameter theories without loss of generality	
9:50 - 10:25	Baimova Julia	Crumpled graphene as the basement for new graphene/metal composites	
10:25 - 11:00	Song-Jeng Huang	Effect of single (SiC or Nb 2 O 5) and hybrid (Al 2 O 3 /SiC) reinforcements on mechanical properties of Mg matrix composites processed by stir casting method and ECAP processing	
11:00 - 11:15	***Coffee-break***		***Winter Garden***

Chairman	*Liazhkov Sergei*	**Solids and structures**	ROOM B
Link: https://us02web.zoom.us/j/83186163460?pwd=NjNNbENYaEMzNXVpMS9hYUdiY2ZlQT09 **ZOOM ID** 831 8616 3460 **Password:** 292441			
11:20 - 11:40	Aizikovich Sergei	Advanced methods for solving contact problems for an inhomogeneous layer and half-space	
11:40 - 12:00	Kashtanova Stanislava	Stability Loss of an Isotropic Plate with an Elliptical Inclusion under Tension	
12:00 - 12:20	Mokhireva Kseniia	Development of viscoelastic model for elastomeric nanocomposites	
12:20 - 12:40	Terpugov Viktor Komar Ludmila	Mathematical model of the kinetics of the chemical reaction of polymerization of a bifunctional epoxy resin (ed-20) and a six-functional triethylenetetraamine (teta) under vacuum conditions, taking into account the evaporation of components with a low molecular weight	online
12:40 - 13:00	Sedova Yulia	Fracture mechanisms of hydrogen-charged metal samples during a three-point bending test	
13:00 - 14:00	***Lunch***		***Canteen***
14:00 - 14:20	Yakovenko Anastasiya	Determination of viscoelastic properties of modified polyurethane at various temperatures	
14:20 - 14:40	Fedorenko Alexey	Anisotropy of mechanical properties of additively manufactured stainless steel 316L in different loading conditions	
14:40 - 15:00	Grigoriev Aleksandr	Development of the formalism of discrete elements for the study of wear particle formation in contact between sliding metals	
15:00 - 15:20	Meshcheryakova Almira	Third body effect on friction and wear in rolling contact	
15:20 - 15:40	Tsukanov Ivan	Effects of surface microgeometry on soft elastic contacts	online
15:40 - 16:00	Khishchenko Konstantin	Equation of state for tungsten at high pressures and temperatures behind the front of shock waves	
16:00 - 16:20	***Coffee-break***		***Winter Garden***
16:20 - 16:40	Tkachenko Oleg	Principal stress-strain states of thin-walled complexly bent pipelines	online
16:40 - 17:00	Filippenko George	Special modes of axisymmetric vibrations of a cylindrical shell loaded with periodic massive rings	online
17:00 - 17:20	Pestov Dmitry	Investigation of the mutual influence of differently located growing cracks	
17:20 - 17:40	Argunova Tatiana	Synchrotron x-ray study and micromechanical interpretation of dislocation emission from gas capsules in shaped sapphire	online
17:40 - 18:00	Savikovskii Artem	Effect of material anisotropy on the crack interaction with free boundary and other cracks	
18:00 - 18:20	Nesterchuk Grigory	Vibrations of a cylindrical shell with the end plate	online
18:20 - 18:40	Almazova Liana	Numerical estimation of fatigue life of aluminum alloy with surface defects	
18:40 - 19:00	Markov Anatoly	An open-access software for the calculation of effective elastic and conductive properties of elastic media. Application to a case study of a reservoir rock sample	online

Chairman		**Mechanical and civil engineering applications**	ROOM C
Link: https://us02web.zoom.us/j/89824649823?pwd=RjkrMG9laW5oeklTQ3JxaC9NeEQ1QT09 **ZOOM ID** 898 2464 9823 **Password:** 376017			
11:20 - 11:40	Melkumova Elena	Method of rescuing a six-legged robot from an emergency position on an uneven surface	
11:40 - 12:00	Klimova Aleksandra	Study of the ultrasonic field distribution using a thermocouple	
12:00 - 12:20	Andreeva Tatiana	Generative design of a precision calorimeter model	
12:20 - 12:40	Ilyin Alexander	Analysis of local flexibility of unreinforced fabricated tees	
12:40 - 13:00	Martemyanov Andrey	Mine floor stability under the action of heavy striker	
13:00 - 14:00	***Lunch***		***Canteen***
14:00 - 14:20	Voloskov Boris	The implementation of the artificial defects in the experimental study of very high cycle fatigue behaviour of additively manufactured 316L stainless steel	
14:20 - 14:40	Shilko Evgeny	Computational analysis of the mechanisms of quasi-static and dynamic fracture of silica refractory at the mesoscale	
14:40 - 15:00	Vitokhin Evgeniy	Non-reflecting boundaries for seismic analysis in the soil-structure system	
15:00 - 15:20	Arutyunyan Alexander	The creep curves modification after aging for different programs	online
15:20 - 15:40	Fedulov Boris	Efficiency of new structural elements based on metamaterials	

15:40 - 16:00		***Coffee-break***	***Winter Garden***
16:00 - 16:20	Kondakov Ivan	Advanced System for Multidisciplinary Numerical Strength and Weight Analysis of Civil Aircraft Structures at Preliminary Stages of Design	
16:20 - 16:40	Tseytlin Boris	Dynamic analysis of a non-proportionally damped structures using a high-precision free-interface component-mode synthesis method	
16:40 - 17:00	Galyautdinova Aliya	Analytical and numerical solution of the problem of hydrogen diffusion in rotating cylindrical elastic bodies	
17:00 - 17:20	Varshavchik Evgenii	Multichannel diffusion in the McNabb and Foster model	
17:20 - 17:40	Saitova Regina	About the possibility of experimental creep curves using to determine the metallic materials damage	
17:40 - 18:00	Levchenkov Mikhail	Investigation of non-regular grid structural layouts for lattice fuselage barrels	
18:00 - 18:20	Ivanov Pavel	Seismic Analysis of Dam-Foundation System with Free-Field Viscoelastic Absorbing Boundary	online
18:20 - 18:40	Golykh Roman	Physical mechanisms and regularities of ultrasonic drilling of unknown ground (before the landing) of space objects in extreme conditions	online
18:40 - 19:00	Prozorova Evelina	The role of the angular momentum in kinetic problems	
19:00 - 19:20	Elkin Aleksandr	Multiaxial fatigue damage model for fiber-reinforced composites	