Session Program

22–26 Jun 2026



MATHEMATICAL MODELING AND COMPUTATIONAL PHYSICS 2026

Mathematical Modeling and Computational Physics - MMCP'2026

Mathematical methods and tools for modeling complex physical systems

Monday 22 June

14:00

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

14:00–14:15 **Modeling of thermophysical processes by multithreaded parallel computing algorithms**

Speaker
Nikolay Stepenko

14:15–14:30
Modelling cosmic-ray propagation in electromagnetic fields and matter interactions with a Python package GT simulation

Speaker
Andrey Dyagilev

14:30–14:45
Comparative assessment of quadratic programming solvers for neutron spectrum unfolding

Speaker
Константин Чижов

14:45–15:00 **Analysis of traffic flows in a roundabout system based on cellular automata models**

Speaker
Dr Marina Trapeznikova

15:00–15:15 **NuSt-Vis, Nuclear Structure Visualization Software**

Speaker
Женис Мусульманбеков

15:15–15:30 **Solvable models for interacting particles with spin and fundamental constants**

Speaker
Dr Nugzar Makhaldiani

15:30–15:45 **Maxwell-Fourier regularisation of MSC-230 cyclotron magnetic field map**

Speaker
Svetlana Dima

15:45–16:00
Simulation of gasdynamic flows in regions with complex geometries using the fictitious domain method

Speaker
Dr Natalia Churbanova

16:00

16:20

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

16:20–16:35
Breaking of Structural Symmetry and Topological Defects in the Classical Thomson Problem on a Disk at Zero Temperature

Speaker
Eduard Nikonov

16:35–16:50
Regularized Equations for Dynamics of Heterogeneous Binary Mixtures and Water–Vapor Phase Transitions

Speaker
Alexander Zlotnik

16:50–17:05 **Electrical conductivity of transparent conducting films based on crack templates**

Speaker
Mr Andrei Eserkepov

17:05–17:20
Methods and algorithms for parallel modeling magnetostatic fields of a compact electromagnetic device of experimental setup to study rot effects in fission of heavy nuclei

Speaker
Yuldashev Oleg

17:20–17:35 **Numerical solution of nonstationary problems with memory**

Speaker
Petr Vabishchevich

17:35–17:50 **Symbolic recursion method for strongly correlated quantum dynamics**

Speaker
Oleg Lychkovskiy

17:50–18:05 **Analytical and Numerical Calculations within the Framework of the Basic Element Met**

Speaker
Nikolay Dikusar

18:05–18:20
Analysis of the resonant properties of the IBR-2M reactor during a cycle using the basic elements method

Speaker
Sumkhuu Davaasuren

18:20

Tuesday 23 June

14:00

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

14:00–14:15 **Numerical simulation of the orientation symmetric top molecule by shaped laser pulse.**

Speaker
Eugene Koval

14:15–14:30
An investigation of the controllability and optimal control problems for the fractional dynamical systems of variable order

Speaker
Sergey Postnov

14:30–14:45
Application of the grid-characteristic method to the numerical study of anisotropy in fractured media

Speaker
Ilia Agrelov

14:45–15:00 **Multi-agent approach to nuclear many-body system modelling**

Speaker
Yury Ivanskiy

15:00–15:15 **Analytical solutions of the Kuramoto–Sivashinsky equation with nonlinear convection**

Speaker
Prof. Nikolay Kudryashov

15:15–15:30
APPLICATION OF THE CABARET SCHEME FOR MODELING TWOPHASE FLOWS IN PIPELINES

Speaker
Mr Mikhail Turbylev

15:30–15:45 **Conservation laws for a family of generalized nonlinear Schrödinger equations**

Speaker
Daniil Nifontov

15:45–16:00 **About the hysteresis model in biological systems**

Speaker
Elena Postnova

16:00

16:20

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

16:20–16:35
Generalized ordinary differential equations of Chazy class VII: first integrals and general solutions

Speaker
Aleksandr Kutukov

16:35–16:50
Self-Consistent Modeling of Oxygen Atom Transport in a Remote Plasma Reactor for Photoresist Ashing

Speaker
Yury Zakharov

17:05–17:20
Reaction-diffusion processes: Non-perturbative renormalization group treatment of advection effects

Speaker
M. Kecer

17:20–17:35 **Real-time identification and classification of defects in radiation damage simulations**

Speaker
Dr Trong Hoang Trung Nguyen

17:35–17:50 **Stability Analysis of the Steady Solution for Incompressible Lid-Driven Cavity Flow**

Speaker
Dmitrii Lomasov

17:50–18:05 **Multiscale mathematical modeling the cold spray of metallic nanoparticles on surfaces**

Speaker
Prof. Viktoriia Podryga

18:05–18:20 **Differentiable Fixed-Topology Mesh Adaptation**

Speaker
Sergei Voitov

18:35

Thursday 25 June

14:00

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

14:00–14:15

Precision laser inclinometer. Method for determining vertical displacement of a surface from its tilt.

Speaker
Иван Бедняков

14:15–14:30

Floquet multipliers of ϕ^4 standing waves in a ball: comparison of JULIA and MATLAB implementations

Speaker
Maxim Bashashin

14:30–14:45

Derivation Weierstrass elliptic equation within Appell sequences of mass-shell polynomials and its application in relativistic kinematics

Speaker
Dr Robert Yamaleev

15:00–15:15

The application of the computational domain symmetry in the magnetostatics problem integral approach based on a linear approximation of magnetization.

Speaker
Павел Акишин

15:15–15:30 **Gauge Averaging and Quantum Indeterminism: A Finite-Field Model**

Speaker
Владимир Корняк

15:30–15:45

On the Calculation of Feynman Integrals via Neural Network Approximation of Antiderivatives

Speaker
Gregory Shipunov

15:45–16:00

Python driven Atomistic Simulation Environment modeling of adsorption based on interatomic potentials

Speaker
Dr Мирослав Ильяш

16:00

16:20

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

16:20–16:35

Numerical study of the flow around a descent spacecraft taking into account radiative heat transfer

Speaker
Nikita Tarasov

16:35–16:50 **Numerical study of purging modes of the drift chamber of the TREK detector**

Speaker
Mr Georgii Ageev

16:50–17:05
Analytical solution of a fourth-order algebraic equation obtained within the framework of modeling the Brownian motion of particles

Speaker
Dr Ján Buša

17:05–17:20 **Modeling granule processing in a rotary tumbling machine**

Speaker
Mr Nikita Kalinichev

17:20–17:35 **Numerical solution of elliptic boundary value problems using edge-based approximation**

Speaker
Mikhail Chernyshov

17:35–17:50
Molecular Dynamics Modeling of Ni and Cu Nanocluster Interaction with a Metal Substrate

Speaker
IVAN SAFONOV

17:50–18:05 **Calculation of effective response of ring metamaterials in a rectangular waveguide**

Speaker
Aleksandr Makarenko

18:05–18:20 **GPU-Accelerated Particle-in-Cell Simulation of Thermo-Penning Discharges**

Speaker
Daniil Kolotinskii

18:35

Friday 26 June

09:00

Mathematical methods and tools for modeling complex physical systems

Session | **Location:** MLIT, Conference Hall

09:00–09:15 **Theoretical modelling of resonance and locking in anomalous Josephson junctions**

Speaker
Dr Majed Nashaat Abdel Ghani

09:15–09:30 **Modeling of a Josephson junction with a second harmonic in the current-phase relation**

Speaker
Ирина Брусилова

09:30–09:45 **FRG study of the Aharony fixed point in dipolar magnets**

Speaker
Georgii Kalagov

09:45–10:00 **Field-Theoretic Approach to Helical MHD Turbulence and Large-Scale Dynamo Formati**

Speaker
Dr Andrei Ovsiannikov

10:00–10:15 **Isotopic scaling as a probe of temperature in the heavy-ion fragmentation reaction**

Speaker
Татьяна Михайлова

10:15–10:30 **Methods of Non-integral Geometry for the Image Reconstruction Problem**

Speaker
Prof. Igor V. Anikin

10:30–10:45 **On numerical singularities of computational scheme in the reconstruction problem**

Speaker
Anastasia Anikina

10:45–11:00 **Simulation of Photon Detector Based on a Long Josephson Junction**

Speaker
Adiba Rahmonova

11:00