Session Program

22–26 Jun 2026



MATHEMATICAL MODELING AND COMPUTATIONAL PHYSICS 2026

Mathematical Modeling and Computational Physics - MMCP'2026

Modern methods for data processing and analysis in Mega-science projects in HEP

Monday 22 June

14:00

Modern methods for data processing and analysis in Mega-science projects in HEP

Session | **Location:** MLIT, Room 310

14:00–14:15 **Processes of gravitino production as a dark matter particle in stealth supersymmetry**

Speaker
Alina Nurysheva

14:15–14:30 **Gravitino pair production at the LHC**

Speaker
София Франк-Каменецкая

14:30–14:45 **Dark matter in the two-doublet Higgs model with b-quarks in the final state**

Speaker
Zaurbek Khabaev

14:45–15:00
Application of deep neural network methods for the identification of Higgs boson production in association with a single top quark in proton–proton collisions at $\sqrt{s}=13.6$ TeV

Speaker
Mr Rustam Azimzade

15:00–15:15 **Vectorized graph computations in Python with dag-modelling**

Speaker
Vitalii Zavadskyi

15:15–15:30
Neutrino Trapping Effects in Hybrid and Strange Stars Revealed Through Gravitational Waves from Merger Events Using AI Analysis

Speaker
Dr Chitta Ranjan Das

15:30–15:45 **Some algorithms for evaluation of Goncharov multilogarithms and related functions**

Speaker
Егор Дыдышко

15:45–16:00 **Event-by-Event analysis in the multiparticle events**

Speaker
Олег Рогачевский

16:00

16:20

Modern methods for data processing and analysis in Mega-science projects in HEP

Session | **Location:** MLIT, room 310

16:20–16:35
Time-reversed anisotropic diffusion approach for probing the Galactic contribution to the TeV–PeV astrophysical neutrino flux

Speaker
Nickolay Martynenko

16:35–16:50 **Overlapped signals delimitation for HEP experiments**

Speaker
Dmitry Fomenok

16:50–17:05 **3D hit reconstruction in End-Cap straw trackers in High Energy Physics**

Speaker
Maria Dima

17:05–17:20 **Geant4 hadronic model developments for HEP experiments**

Speaker
Nikita Chalyi

17:20–17:35 **Studies of Quark- and Gluon-Jet Properties at CMS: Methods, Challenges,and Solutions**

Speaker
Сергей Шульга

17:35–17:50 **Polarized gamma-gamma collisions in the ReneSANCe event generator**

Speaker
Renat Sadykov

18:20

Thursday 25 June

14:00

Modern methods for data processing and analysis in Mega-science projects in HEP

Session | **Location:** MLIT, Room 310

14:00–14:15 **Kubernetes-based online TPC data processing and monitoring for NICA/MPD**

Speaker
Andrey Budnikov

14:15–14:30
Track Reconstruction in SPD Timeslices Using Graph Neural Networks with Contrastive Learning

Speaker
Aleksei Didorenko

14:30–14:45
Graph Attention Neural Network for Clustering Particle Tracks by Events in the SPD experiment

Speaker
Savelii Omelianchuk

14:45–15:00 **PIdML: ML-Based Particle Identification in MpdRoot**

Speaker
Vladimir Papoyan

15:00–15:15 **Tracklet aided determination of t0 in Straw Trackers**

Speaker
Mihai-Octavian Dima

15:15–15:30
Generative approach to charge cluster simulation for the GEM detector in the BM@N experiment

Speaker
Mr Dmitry Baranov

15:30–15:45 **Full-scale simulation of the MPD experimental setup and data analysis techniques**

Speaker
Аркадий Тараненко

15:45–16:00 **Fast Weighted-DOCA Seeding for Primary Vertex Linearization in SPD**

Speaker
Maria Dima

16:00

16:20

Modern methods for data processing and analysis in Mega-science projects in HEP

Session | **Location:** MLIT, Room 310

16:20–16:35
D--, D_{S}--resonances electroweak characteristics in a relativistic quark model employing analytical computing systems calculation.

Speaker
Dr Vadzim Haurysh

16:35–16:50
On the Log-Normal Law of Ionization Energy Loss in the TPC Detector of the MPD/NICA Experiment / О логнормальном законе распределения ионизационных потерь в детекторе TPC эксперимента MPD/NICA

Speaker
Евгений Осетров

16:50–17:05 **Energy Loss Reconstruction Analysis in the BM@N Experiment**

Speaker
Sergei Merts

17:05–17:20 **Algorithm of geometry alignment of the BM@N detectors**

Speaker
Игорь Полев

17:20–17:35 **Framework for realistic flow measurements and centrality determination in MPD at NICA**

Speaker
Peter Parfenov

17:35–17:50 **Simulation of elastic and inelastic deuteron-deuteron interactions**

Speaker
Аида Галоян

17:50–18:05
HEPWEB2: A Web Platform for Cross-Section Calculations and Testing of Monte Carlo Generators in High-Energy Physics

Speaker
Владимир Ужинский

18:05–18:20
Modelling of light nuclei and hypernuclei production in heavy-ion collisions at NICA energies with use of generator THESEUS based on 3-fluid dynamics

Speaker
Marina Kozhevnikova

18:20–18:35 **New Geant4 internal cross section data base**

Speaker
Андрей Бернгардт

18:35

Friday 26 June

09:00

Modern methods for data processing and analysis in Mega-science projects in HEP

Session | **Location:** MLIT, Room 420

09:00–09:15

A Reinterpretation of the LHC Results on the Search for Dark Matter in Various Models with an Extended Higgs Sector

Speaker
Юрий Корсаков

09:15–09:30

Capabilities of measuring electron drift velocity for MPD TPC

Speaker
Alexander Bychkov

09:30–09:45

Distributed data Analysis in High Energy Physics: integration of ROOT RDataFrame and Apache Spark

Speaker
Татьяна Соловьева

09:45–10:00

Geometric Alignment Method for GEM Detectors of the BM@N Experiment

Speaker
Зариф Шарипов

10:00–10:15

A method for multimodal analysis of TAIGA experiment data using essential features extracted by autoencoders

Speaker
Alexander Kryukov

10:15–10:30

Evaluation of Multi Deep Neural Network Architectures for Neutron Spectrum Unfolding Approaches from Bonner Sphere Systems

Speaker
Dr Mohamed Gaber

11:00