



The 4th International Symposium on Cosmic Rays and Astrophysics

Tuesday, 27 June 2023 - Thursday, 29 June 2023
National Research Nuclear University MEPhI

Programme



Tuesday 27 June 2023

Registration to the ISCRA-2023 Symposium (09:00 – 10:00)

The Hall of B-100 Lecture Room

Opening of the ISCRA-2023 Symposium (10:00 – 10:30)

B-100 Lecture Room

Overview Talks (10:30 – 11:30)

B-100 Lecture Room

10:30	Neutrino telescope Baikal-GVD: status and results	DZHILKIBAEV, Zhan-Arys INR RAS
11:00	30 years of cosmic ray research in the Tunka Valley	BUDNEV, Nikolay Irkutsk State University

Coffee Break (11:30 – 12:00) *The Hall of B-100 Lecture Room*

Overview Talks (12:00 – 13:00)

B-100 Lecture Room

12:00	Cosmic rays data for Space Weather forecasting	ABUNINA, Maria IZMIRAN
12:30	Overview on EAS neutrons: recording and simulations	STENKIN, Yuri INR RAS

Cosmic rays of very high energies (> 1 PeV) (13:00 – 13:30)

B-100 Lecture Room

13:00	Title: Progress of Electron-Neutron Detector Array (ENDA)	LIU, Mao-Yuan Tibet University
13:15	Techniques for data analysis and primary mass reconstruction in the ENDA experiment	KURINOV, Kirill INR RAS

Lunch Break (13:30 – 14:30) *MEPhi Dining Halls*

Cosmic rays of very high energies (> 1 PeV) (14:30 – 16:00)

B-100 Lecture Room

14:30	The Baikal-GVD neutrino telescope: current status and development prospects	AYNUTDINOV, Vladimir INR RAS
14:45	Solar radio bursts in the Radio Neutrino Observatory in Greenland RNO-G	MIKHAILOVA, Maria MEPhi
15:00	Magnetorotational supernova neutrino emission spectra and prospects for observations by large-size underwater telescopes	KONDRATYEV, Vladimir JINR
15:15	Development of an EAS type identification method based on an artificial neural network for the TAIGA experiment	KRAVCHENKO, Evgeniy NSU / BINP SB RAS
15:30	High Energy Ray Observatory, optimization and current status	PODOROZHNY, Dmitry SINP MSU
15:45	Elaboration of a model of SPHERE-3 telescope for the studies of the primary cosmic rays in 10^{15} – 10^{18} eV energy range using reflected from snowed surface and direct Cherenkov light from extensive air showers	BONVECH, Elena SINP MSU

Poster Session + Coffee Break (16:00 – 17:00) *The Hall of B-100 Lecture Room*

Cosmo- and geophysical aspects of cosmic rays at the ground level (17:00-18:00)

B-100 Lecture Room

17:00	A nuclear emulsion detectors for the muonography of underground structure of Holy Dormition Pskov-Caves Monastery	<i>POLUKHINA, Natalia</i> <i>LPI RAS</i>
17:15	The latest results obtained on the LVD experiment	<i>FILIMONOVA, Natalia</i> <i>INR RAS / MIPT</i>
17:30	Influence of atmospheric fronts on cosmic ray muon flux	<i>TIMAKOV, Stanislav</i> <i>MEPhI</i>
17:45	Event reconstruction method in a hybrid muon hodoscope	<i>PASIUK, Nikita</i> <i>MEPhI</i>

Wednesday 28 June 2023

Overview Talks (10:00 – 11:30)

B-100 Lecture Room

10:00	Cosmic rays, their role in atmospheric phenomena	STOZHKOVA, Yuri LPI RAS
10:30	A new approach to determination of the cosmic ray composition	SHAULOV, Sergey LPI RAS
11:00	Cosmic ray sources in the Galaxy	BYKOV, Andrey Ioffe Institute

Coffee Break (11:30 – 12:00) *The Hall of B-100 Lecture Room*

Cosmic rays of very high energies (> 1 PeV) (12:00 – 13:30)

B-100 Lecture Room

12:00	Combined diffusive shock and shear acceleration in astrophysical jets	ZIRAKASHVILI, Vladimir IZMIRAN
12:15	Where are the pevatrons that form the knee in the spectrum of the cosmic ray nucleon component around 4 PeV?	VOLKOV, Nikolay Altai State University
12:30	On the nature of cosmic ray transport nonlocality	UCHAIKIN, Vladimir Uljanovsk State University
12:45	Investigation of the large-scale distribution of the arrival points of 1-100 PeV EAS detected at the Tien Shan cosmic ray installation	SHEPETOV, Alexander LPI RAS
13:00	Study of anomalous events in the TUS experiment	BLINOV, Aleksandr JINR
13:15	Energy deposit of EAS cores detected by the facilities of the Experimental Complex NEVOD	KHOKHLOV, Semyon MEPhI

Lunch Break (13:30 – 14:30) *MEPhI Dining Halls*

Cosmo- and geophysical aspects of cosmic rays at the ground level (14:30 – 16:00)

B-100 Lecture Room

14:30	Formation of a Forbush decrease in a magnetic cloud by the electromagnetic mechanism	PETUKHOVA, Anastasia SHICRA SB RAS
14:45	The modeling of the cosmic ray particles interaction with the Earth's atmosphere during the GLE events	MAURCHEV, Evgenii IZMIRAN
15:00	Calculation of geomagnetically trapped proton flux from the PAMELA experimental data	MALAKHOV, Vitaly MEPhI
15:15	Testing the mezofractal power spectrum for ISM by comparing with numerical MHD calculations	KOZHEMYAKIN, Ilya Uljanovsk State University
15:30	High-energy magnetospheric electron flux enhancements and the parameters of interplanetary and near-Earth medium	KRYAKUNOVA, Olga Institute of Ionosphere
15:45	Cosmic ray accelerator in the inhomogeneous heliosphere and its impact on the inhabitants of the Earth	VYSIKAYLO, Philipp Moscow Region State University

Poster Session + Coffee Break (16:00 – 17:00) *The Hall of B-100 Lecture Room*

Cosmic rays of very high energies (> 1 PeV) (17:00-18:15)

B-100 Lecture Room

17:00	CMS Measurements and UHECR	KHEYN, Lev <i>SINP MSU</i>
17:15	Bose–Einstein condensation and muon production in ultra-high energy cosmic ray particle collisions	OKOROKOV, Vitalii <i>MEPhI</i>
17:30	Hadronization as a key to the muon puzzle	NIKOLAENKO, Roman <i>MEPhI</i>
17:45	Kinematic description of alignment in the Pamir experiment	NIKOLSKII, Aleksei <i>JINR</i>
18:00	Current status of the TREK detector for studies of cosmic ray muon bundles at large zenith angles	TROSHIN, Ivan <i>MEPhI</i>

Excursions to NEVOD (TREK detector) (18:15 – 19:30)

Experimental Complex NEVOD

Thursday 29 June 2023

Cosmic rays of very high energies (> 1 PeV) (10:00 – 11:30)

B-100 Lecture Room

10:00	A new break near 10 TeV in the energy spectrum of protons according to data from space-based instruments: astrophysical interpretation	LAGUTIN, Anatoly Altai State University
10:15	Studying muon bundles of inclined air showers in the NEVOD-DECOR experiment	BOGDANOV, Aleksei MEPhI
10:30	Direct comparison of muons in ultrahigh energy EASs between Yakutsk array and Auger experiment data	KSENOFONTOV, Leonid SHICRA SB RAS
10:45	Systematic uncertainties of the primary astroparticle energy estimation vs zenith angle distribution of EAS event rate measured with surface array	IVANOV, Anatoly SHICRA SB RAS
11:00	The study of cosmic rays with energies greater than 5 EeV by radio method	PETROV, Igor SHICRA SB RAS
11:15	Reconstruction of the characteristics of a high-energy event detected by the Carpet-2 array in association with the GRB 221009A gamma-ray burst	KARPIKOV, Ivan INR RAS

Coffee Break (11:30 – 12:00) *The Hall of B-100 Lecture Room*

Cosmo- and geophysical aspects of cosmic rays at the ground level (12:00 – 13:15)

B-100 Lecture Room

12:00	Selection of the solar-diurnal anisotropy of cosmic rays by local and global methods	SHLYK, Nataly IZMIRAN
12:15	Cosmic ray variations of magnetospheric and atmospheric origin in September 2017	KOVALEV, Ivan ISTP SB RAS
12:30	Acceptance vectors of muon hodoscope URAGAN	KUZMENKOVA, Polina MEPhI
12:45	Forecast of strong geomagnetic storms in February-March 2023 based on measurements of fluctuations in the intensity of galactic cosmic rays	GOLOLOBOV, Petr SHICRA SB RAS
13:00	Astrophysical aspects of multiple fragmentation of nuclei in nuclear emulsion	ZAITSEV, Andrei JINR

Closing of the ISCRA-2023 Symposium (13:15 – 13:30)

B-100 Lecture Room

Lunch Break (13:30 – 14:30) *MEPhI Dining Halls*

Session of the Bureau of the Council on “Cosmic Rays” (14:30 – 16:00)

B-100 Lecture Room

Coffee Break (16:00 – 16:30) *The Hall of B-100 Lecture Room*

Session of the Bureau of the Council on “Cosmic Rays” (16:30-18:00)

B-100 Lecture Room

Posters (27 – 28 June 2023)

#	Title	Presenter
Cosmic rays of very high energies (> 1 PeV)		
1	New approach of explaining the missing sources of UHE neutrinos as an effect of approaching Planck length	SHEHADA, Abdullah <i>Chechen State Pedagogical University</i>
2	Extensive air showers of highest energies registered at the Yakutsk array	KNURENKO, Stanislav <i>SHICRA SB RAS</i>
3	A technique of the calibration of optical modules inside the volume of Cherenkov water detector NEVOD	KARETNIKOVA, Tatyana <i>MEPhI</i>
4	The project of the hardware and software system for storage and analysis of large amounts of data of the scientific facilities of the Experimental Complex NEVOD	SHULZHENKO, Ivan <i>MEPhI</i>
5	The data acquisition system of the coordinate-tracking detector TREK	KHOMCHUK, Evgeniy <i>MEPhI</i>
6	Reconstruction of parameters of extensive air showers registered by the NEVOD-EAS array	YUZHAKOVA, Elena <i>MEPhI</i>
7	Ultrahigh-energy neutrino-nucleon deep-inelastic scattering and the Froissart bound violation	KOTIKOV, Anatoly <i>JINR</i>
8	Monte Carlo simulation of the OLVE-HERO detector	SATYSHEV, Ilyas <i>JINR</i>
9	Coulomb pulsars are sources of cosmic rays with energies greater than 10 TeV	VYSIKAYLO, Phiilipp <i>Moscow Region State University</i>
10	Mass composition of cosmic rays with energies above 3×10^{15} eV according to the data of the small Cherenkov array	MOKHNACHEVSKAYA, Valentina KNURENKO, Stanislav <i>SHICRA SB RAS</i>
11	A new method for searching for VHE muons in data from Cherenkov water neutrino telescopes	LISITSIN, Mikhail <i>MEPhI</i>
12	Extraction of signals from EAS neutrons detected by the URAN setup	CHERNOV, Dmitriy <i>MEPhI</i>
13	Analysis of joint events by means of the ProtoTREK and the NEVOD-EAS data	GAZIZOVA, Diana <i>MEPhI</i>
14	Search for particle excess from the Cygnus Cocoon region direction during a hypothetical flare detected in the Baksan Crapet-2 experiment	SVESHNIKOVA, Lyubov <i>SINP MSU</i>
15	Modernization of mechanical attachments point	BLINOV, Aleksandr <i>JINR</i>
16	Cutoff rigidity in the Galactic magnetic field	YULBARISOV, Rustam <i>MEPhI</i>
17	Tunka-Grande and TAIGA-Muon experiments: status, results and prospects	MONKHOEV, Roman <i>API ISU</i>
18	High-frequency antenna cluster at the Tien Shan High-Mountain Scientific Station	SHINBULATOV, Saken MUKHAMEJANOV, Yerzhan <i>KazNU al Farabi</i>
19	The possibility of detecting TeV electrons and positrons of galactic cosmic rays using the Earth's magnetic field	STUZHIN, Alexandr <i>MEPhI</i>

Cosmo- and geophysical aspects of cosmic rays at the ground level		
20	Development of 10 sq.m hodoscope made of drift tubes for cosmic ray muon registration	BARINOV, Mikhail NRC "Kurchatov Institute" - IHEP
21	Thermal neutron background variations monitoring using en-detectors	KURINOV, Kirill INR RAS
22	The indication for 40K geo-antineutrino flux with Borexino phase-III data	KARPIKOV, Ivan INR RAS
23	Application of coupling functions to analyze energy characteristics of Forbush decreases according to URAGAN muon hodoscope data	SUKHOVA, Polina MEPhI
24	Forbush decreases associated with coronal holes, coronal mass ejections from active regions, and filament eruptions: a comparison in solar cycles 23 and 24	ABUNINA, Maria IZMIRAN
25	Dynamics of high-energy proton fluxes in the South Atlantic Anomaly region according to ARINA and VSPLESK satellite experiments	ALEKSANDRIN, Sergey MEPhI
26	Features of Forbush decreases obtained by satellite and ground-born detectors	LAGOIDA, Ilya MEPhI
27	Project of a mobile muon hodoscope for muonography of various objects	TSELINENKO, Maxim MEPhI
28	Extending of the capabilities of the PRISMA-36 array through the introduction of a recording channel for studying neutron variations	GROMUSHKIN, Dmitry MEPhI
29	Study of cosmic ray variations in 2021-2022 based on the ENU scientific complex data	MORZABAEV, Aidar L.N. Gumilyov Eurasian National University
30	Local interstellar spectra of electrons and positrons by demodulating fluxes from the PAMELA experiment	MUKHIN, Pavel MEPhI
31	Spectrum of cosmic rays variations in 2011-2021 according to AMS-02 magnetic spectrometer onboard the ISS	SLASTNAYA, Vasilina MEPhI
32	The module for positron detecting of the solid-state antineutrino detector	GROMUSHKIN, Dmitry MEPhI