



# ISCRA-2021

International Symposium on Cosmic Rays and Astrophysics

## Information letter #2

The 3<sup>rd</sup> International Symposium on Cosmic Rays and Astrophysics (ISCRA-2021) is organized by the National Research Nuclear University MEPhI (Moscow Engineering Physics Institute) and the Consortium “Cosmic Rays and Elementary Particles” under the auspices of the Scientific Council of the Russian Academy of Sciences on the complex problem “Cosmic Rays” and will be held Online on **June 08-10, 2021**.

The aim of the Symposium is a wide discussion of experimental and theoretical results obtained in actual research directions in the field of high energy cosmic rays and astrophysics.

### Programme Committee:

Kuzmichev L.A., SINP MSU (Russia) – Chairman  
Kokoulin R.P., MEPhI (Russia) – Scientific Secretary  
Belov A.V., IZMIRAN (Russia)  
Chiavassa A., Torino University (Italy)  
Chilingaryan A., YerPhI (Armenia)  
Dalkarov O.D., LPI RAS (Russia)  
Dembinski H., CERN (Switzerland)  
Garzon J.A., USC (Spain)  
Gupta S., Tata IFR (India)  
Lagutin A.A., ASU (Russia)  
Lokhtin I.P., SINP MSU (Russia)  
Polukhina N.G., LPI RAS (Russia)  
Spiering C., DESY (Germany)  
Starodubtsev S.A., SHICRA SB RAS (Russia)  
Stenkin Yu.V., INR RAS (Russia)  
Stozhkov Yu.I., LPI RAS (Russia)  
Tluczykont M., UHH (Germany)  
Troitsky S.V., INR RAS (Russia)

### Organizing Committee:

Strikhanov M.N. – Chairman  
Barbashina N.S. – Vice-Chairman  
Galper A.M. – Vice-Chairman  
Petrukhin A.A. – Vice-Chairman  
Dmitrieva A.N. – Executive Secretary  
Astapov I.I.  
Khokhlov S.S.  
Koldobsky S.A.  
Konovalova A.Yu.  
Kovylyaeva A.A.  
Kuzmenkova P.S.  
Mayorov A.G.  
Mishutina Yu.N.  
Shulzhenko I.A.  
Voronov S.A.  
Yakovleva E.I.  
Yashin I.I.  
Zadeba E.A.

### Important dates:

<b>June 8-10</b>	Scientific sessions of the Symposium
<b>June 25</b>	Submission of the final versions of the papers
<b>December 2021</b>	Publication of papers in “Physics of Atomic Nuclei”

In the program of ISCRA-2021, 30 overview talks (25 minutes including discussion) and 26 original talks (15 minutes including discussion) are included.

## Program of ISCRA-2021

CODE	Section	Convener
S_1	Multicomponent EAS investigations	Stenkin Yu.V.
S_2	Energy spectrum and mass composition around and above the knee (direct and EAS measurements)	Chiavassa A.
S_3	Nucleus-nucleus interactions at high energies (models and experiments)	Lokhtin I.P.
S_4	TeV-PeV gamma rays	Tluczykont M.
S_5	Cosmo- and geophysical aspects of cosmic rays	Stozhkov Yu.I.

### Timetable (Moscow time, GMT +3:00)

June 08, 2021	June 09, 2021	June 10, 2021
<div style="background-color: #808080; color: white; padding: 2px; font-size: small;">OPENING (10:00 – 10:15)</div> <div style="background-color: yellow; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_1_1</b> (10:15 – 12:10)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (12:10 – 12:25)</div> <div style="background-color: yellow; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_1_2</b> (12:25 – 14:05)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (14:05 – 14:55)</div> <div style="background-color: #d3d3d3; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_5_1</b> (14:55 – 17:30)         </div>	<div style="background-color: #90ee90; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_2_1</b> (10:00 – 12:00)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (12:00 – 12:15)</div> <div style="background-color: #ffcc99; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_4_1</b> (12:15 – 13:50)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (13:50 – 14:40)</div> <div style="background-color: #d3d3d3; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_5_2</b> (14:40 – 15:50)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (15:50 – 16:00)</div> <div style="background-color: #add8e6; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_3</b> (16:00 – 17:35)         </div>	<div style="background-color: #d3d3d3; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_5_3</b> (10:00 – 12:00)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (12:00 – 12:15)</div> <div style="background-color: #ffcc99; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_4_2</b> (12:15 – 14:10)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">BREAK (14:10 – 15:00)</div> <div style="background-color: #90ee90; padding: 10px; text-align: center; margin: 5px 0;"> <b>S_2_2</b> (15:00 – 17:35)         </div> <div style="background-color: #808080; color: white; padding: 2px; font-size: small;">CLOSING (17:35 – 17:40)</div>

June 08, 2021

OPENING (10:00 – 10:15)					
S_1_1 Multicomponent EAS investigations (10:15 – 12:10)					
Convener – Stenkin Yu.V.					
Id	Title	Time	Min.	Type	Presenter
4	Study of environmental thermal neutron fluxes: from EAS to Geophysics	10:15	25	Overview	Yu. Stenkin
22	Multi-component study of extensive air showers at the Tien Shan mountain station of LPI and peculiarities of the particles flux behavior in the central region of the (1-100) PeV EAS	10:40	25	Overview	A. Shepetov
35	Prospects of “muon puzzle” solution with the NEVOD-DECOR-TREK complex	11:05	25	Overview	E. Zadeba
5	Status of the Yakutsk air shower array and future plans	11:30	25	Overview	L. Ksenofontov
45	The analysis of muon component of extensive air showers from the SUGAR data	11:55	15	Original	I. Karpikov
BREAK (12:10 – 12:25)					
S_1_2 Multicomponent EAS investigations (12:25 – 14:05)					
Convener – Stenkin Yu.V.					
Id	Title	Time	Min.	Type	Presenter
77	Update on the WHISP combined analysis of muon measurements from air shower experiments	12:25	20	Overview	H. Dembinski
18	Review of investigations of muon bundles generated by very-high energy cosmic rays	12:45	25	Overview	V. Vorobev
13	Electron-Neutron Detector Array (ENDA)	13:10	15	Original	Xin-hua Ma
17	Machine learning techniques applications for the ENDA experiment data analysis	13:25	15	Original	O. Shchegolev
44	Investigation of anomalous effects in cosmic rays	13:40	25	Overview	S. Shaulov
BREAK (14:05 – 14:55)					
S_5_1 Cosmo- and geophysical aspects of cosmic rays (14:55 – 17:30)					
Convener – Yu.I. Stozhkov					
Id	Title	Time	Min.	Type	Presenter
54	Investigation of cosmic ray modulation effects by the regular sounding of charged particle fluxes in the atmosphere and on the ground	14:55	25	Overview	V. Makhmutov
26	Large scale modulation: view from the earth points	15:20	25	Overview	V. Yanke
24	Geophysical aspect of the cosmic ray studies at the Tien Shan mountain station: monitoring of radiation background, investigation of atmospheric electricity phenomena in thunderclouds and the search for earthquake precursor effects	15:45	25	Overview	V. Ryabov
19	Diagnostics of electromagnetic conditions in the heliosphere on effects in cosmic rays	16:10	25	Overview	V. Sdobnov
28	Solar energetic particles and trapped radiation in the near-Earth's Space: space experiments and modelling	16:35	25	Overview	V. Kalegaev
71	The TRASGO Program. Current status and first results	17:00	25	Overview	D. Garcia-Castro

June 09, 2021

<b>S_2_1 Energy spectrum and mass composition around and above the knee (direct and EAS measurements) (10:00 – 12:00) Convener – A. Chiavassa</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
40	Cosmic ray study at the Astrophysical Complex TAIGA: results and plans	10:00	25	Overview	L Kuzmichev
11	Cosmic Ray Mass Composition Problem: towards model-independent evaluation based on the analysis of the spatial and temporal structure of EAS charged components	10:25	25	Overview	R. Raikin
53	About cosmic ray sources in Galaxy	10:50	15	Original	Yu. Stozhkov
31	Non-classical diffusion of the cosmic rays in the Galaxy: Energy spectra of primary nuclei	11:05	15	Original	A. Lagutin
48	Generation of cosmic rays of high energy	11:20	15	Original	K. Belotsky
78	Resent results from the Pierre Auger Collaboration	11:35	25	Overview	T. Bretz
<b>BREAK (12:00 – 12:15)</b>					
<b>S_4_1 TeV-PeV gamma rays (12:15 – 13:50) Convener – M. Tluczykont</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
12	Status and first results of LHAASO	12:15	25	Overview	Yi Zhang
47	The Carpet-3 EAS array for investigation of gamma-radiation with energy $E > 100\text{TeV}$	12:40	15	Original	A. Kudzhaev
36	Particle acceleration and radiation processes in supernova remnants.	12:55	15	Original	V. Zirakashvili
75	Cosmic Rays and Supernova remnants: an observational challenge	13:10	25	Overview	G. Puehlhofer
79	An overview of high-energy diffuse gamma-ray emission measured by Fermi LAT and H.E.S.S.	13:35	15	Original	D. Malyshev
<b>BREAK (13:50 – 14:40)</b>					
<b>S_5_2 Cosmo- and geophysical aspects of cosmic rays (14:40 – 15:50) Convener – Yu.I. Stozhkov</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
16	Studies of heliospheric modulation of cosmic rays at ShICRA SB RAS and prospects of their further development	14:40	25	Overview	P. Gololobov
9	Variations of atmospheric muons and background measured with Large Volume Detector	15:05	15	Original	N. Agafonova
41	Atmospheric effects of electron and muon components of cosmic rays: Sensitivity theory approach and data of operational satellite monitoring	15:20	15	Original	N. Volkov
20	On the very local interstellar spectra for galactic Helium-isotopes, deuteron, positrons and antiprotons	15:35	15	Original	M. S. Potgieter
<b>BREAK (15:50 – 16:00)</b>					
<b>S_3 Nucleus-nucleus interactions at high energies (models and experiments) (16:00 – 17:35) Convener – I.P. Lokhtin</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
55	Recent ALICE results on antinuclei inelastic cross sections and the implications for antinuclei fluxes near Earth	16:00	25	Overview	I. Vorobyev
49	Inelastic diffraction at CMS	16:25	25	Overview	L. Kheyn
65	QGSJET-III model: novel features	16:50	15	Original	S. Ostapchenko
8	Recent developments on EPOS	17:05	15	Original	K. Werner
7	Comparison of models of nucleus-nucleus interactions implemented in CORSIKA	17:20	15	Original	R. Nikolaenko

June 10, 2021

<b>S_5_3 Cosmo- and geophysical aspects of cosmic rays (10:00 – 12:00) Convener – Yu.I. Stozhkov</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
15	Muonography method and the prospects of its further development	10:00	25	Overview	N. Barbashina
42	Muonography of large natural and industrial objects	10:25	25	Overview	N. Polukhina
21	Muon tomography of large-scale objects	10:50	15	Original	I. Yashin
14	Investigating thunderstorm activity in Moscow region via the method of muonography	11:05	15	Original	A. Kachur
25	Application of digital processing of muonogram time series to the analysis of extreme events in the heliosphere	11:20	15	Original	V. Getmanov
34	Temperature effect of muons in the atmosphere and diagnostics of the thermobaric regime of the atmosphere using cosmic rays	11:35	25	Overview	V. Kuzmenko
<b>BREAK (12:00 – 12:15)</b>					
<b>S_4_2 TeV-PeV gamma rays (12:15 – 14:10) Convener – M. Tluczykont</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
50	The TAIGA Experiment Status and Results	12:15	25	Overview	M. Tluczykont
23	Search for astrophysical nanosecond optical transients with TAIGA-HiSCORE array	12:40	15	Original	A. Panov
38	GAMMA-400 gamma-ray observations in GeV and TeV energy range	12:55	15	Original	N. Topchiev
46	Hints at axion-like particles from TeV astrophysics	13:10	15	Original	M. Roncadelli
56	Searching for neutrino and ultra-high-energy gamma ray counterparts of gamma-ray bursts and neutrinos on the GCN/TAN	13:25	15	Original	I. Unatlov
3	Modeling of threshold energy of a small-size Cherenkov telescope with a SiPM camera	13:40	15	Original	A. Krassilchtchikov
76	Implications of astrophysical neutrino detections for TeV-PeV gamma-rays	13:55	15	Original	T. Glauch
<b>BREAK (14:10 – 15:00)</b>					
<b>S_2_2 Energy spectrum and mass composition around and above the knee (direct and EAS measurements) (15:00 – 17:35) Convener – A. Chiavassa</b>					
<b>Id</b>	<b>Title</b>	<b>Time</b>	<b>Min.</b>	<b>Type</b>	<b>Presenter</b>
6	CALET observations during the first 5 years on the ISS	15:00	25	Overview	P. S. Marrocchesi
33	Results from the DAMPE space mission	15:25	25	Overview	I. De Mitri
52	Cosmic Ray Nuclei: Results from AMS-02	15:50	25	Overview	F. Donnini
62	The main results of the PAMELA space mission in cosmic ray measurements and its current status	16:15	25	Overview	A. Mayorov
32	Orbital High Energy Cosmic Rays Observatory - stages of development	16:40	15	Original	D. Podorozhny
70	Status and Prospects of UHECRs Studying by Orbiting Telescopes	16:55	15	Original	P. Klimov
66	Recent Results of Cosmic Ray Measurements from the IceCube Neutrino Observatory	17:10	25	Overview	D. Soldin
<b>CLOSING (17:35 – 17:40)</b>					