

Moscow State University

Faculty of Physics

*Dedicated to the 270th Anniversary of
Moscow State University and
the 90th Anniversary of
Faculty of Physics of MSU*

**TWENTY-FIRST
LOMONOSOV**



**Mikhail Lomonosov
1711-1765**

CONFERENCE

ON Moscow, August 24-30, 2023

**PARTICLE
PHYSICS**

Faculty of Physics, Moscow State University

Joint Institute for Nuclear Research

Institute for Nuclear Research Russian Academy of Sciences

Skobeltsyn Institute of Nuclear Research, Moscow State University

Bruno Pontecorvo Neutrino and Astrophysics Laboratory (MSU)



**INTERREGIONAL CENTRE
FOR ADVANCED STUDIES**

Moscow State University

Faculty of Physics

*Dedicated to the 110th
Anniversary of the birth of
Bruno Pontecorvo*



**FIFTEENTH
INTERNATIONAL
SCHOOL**

on

Moscow, August 25-28, 2023

**NEUTRINO
PHYSICS and
ASTROPHYSICS**

Faculty of Physics, Moscow State University

Joint Institute for Nuclear Research

Institute for Nuclear Research of Russian Academy of Sciences

Skobeltsyn Institute of Nuclear Research, Moscow State University

Bruno Pontecorvo Neutrino and Astrophysics Laboratory (MSU)



**INTERREGIONAL CENTRE
FOR ADVANCED STUDIES**

Бруно Понтекорво

1913-1993

TWENTY-FIRST LOMONOSOV CONFERENCE ON ELEMENTARY PARTICLE PHYSICS

Moscow State University, Moscow, August 24-30, 2023

**Under the Patronage of the Rector
of Moscow State University
Victor Sadovnichy**

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Programme of the 21st Lomonosov Conference on Elementary Particle Physics

(duration of 25 /20-15/ minutes talks includes 5 /3/ minutes for discussion)

(remote talks are highlighted in blue)

24 August, Thursday

08.00 – 09.00 **Registration** (Hall in front of Central Physics Auditorium, Faculty of Physics, Moscow State University)

09.00 – 09.30 **Opening** (Conference Hall)

Chair: Alexander Studenikin, Chairman of Organizing Committee, MSU

Vladimir Belokurov, Dean of Faculty of Physics of MSU

Anton Shashkin, Director of Department of State Policy in the Field of Scientific and

Technical Development, Ministry of Science and Higher Education of Russia

Victor Matveev, Scientific Leader of Joint Institute for Nuclear Research

Grigory Rubtsov, Vice Director of Institute for Nuclear Research RAS

Alexey Vasilyev, Director of National Centre for Physics and Mathematics

09.30 – 13.20 **MORNING SESSION** (Conference Hall)

09.30 D.Grigoriev (Budker Inst. of Nucl. Phys.) *Status of the COMET experiment* (25 min)

09.55 P.Pakhlov (Higher School of Economics) *Hot topic from Belle and Belle II* (25 min)

10.20 H.B.Li (IHEP, CAS) *Precision hyperon physics at BESIII* (25 min)

10.45 I.Bozovic Jelisavcic (Univ. of Belgrade) *Higgs physics at future e+e- colliders* (25 min)

11.10 – 11.40 Tea break

11.40 A.Starobinsky (Landau Inst.) *Adding baryogenesis to minimal viable inflationary models* (25 min)

12.05 K.Dimopoulos (Lancaster Univ.) *Cosmic inflation and dark energy* (25 min)

12.30 M.Giammarchi (INFN, Milan) *Antimatter gravitation and fundamental laws* (25 min)

12.55 M.Rebelo (CFTP/IST, Univ. of Lisbon) *Aspects of models with vector-like singlet quarks* (25 min)

13.20 – 15.00 Lunch

15.00 – 18.30 **AFTERNOON SESSION** (Conference Hall)

15.00 W.Wang (Sun Yat-sen Univ.) *The PandaX experiment and its latest results* (25 min)

15.25 S.Gariazzo (INFN, Turin) *Neutrino masses in cosmology* (25 min)

16.50 Sh.Udo (Kanagawa Univ.) *Recent results and status of TA/TALE/TAx4 experiment* (25 min)

16.15 – 16.40 Tea break

16.40 I.Denisenko (JINR) *SPD experiment at JINR* (25 min)

17.05 V.Riabov (NRC «Kurchatov Inst.» - PNPI) *Status and preparations for the first physics with the MPD* (25 min)

17.40 – 23.30 **SPECIAL SESSION** (40⁰)

Reception banquet will be held on board of a ship that will stream along the river across the central part of Moscow; the conference buses to the ship will depart from the entrance of the Faculty of Physics at **17.40**

25 August, Friday

The 15th International School on Neutrino Physics and Astrophysics

09.00 – 13.30 MORNING SESSION (Conference Hall)

09.00 **G.Safronov** (INR RAS) *Recent results from the Baikal-GVD neutrino telescope* (25 min)

09.25 **D.Akimov** (MEPhI) *Worldwide experimental study of CEvNS* (25 min)

09.50 **A.Konovalov** (Lebedev Phys. Inst.) *Status of COHERENT and new physics opportunities at SNS* (25 min)

10.15 **K.Kouzakov** (MSU & NCPM) *Status of tritium neutrino experiment in Sarov* (25 min)

10.40 **A.Serebrov** (NRC "Kurchatov Inst." - PNPI) *The result of the Neutrino-4 experiment, sterile neutrinos, dark matter and the Standard Model* (25 min)

11.05 – 11.35 Tea break

11.35 **Yu.Kudenko** (INR RAS) *Physics with near neutrino detectors of LBL accelerator experiment* (25 min)

12.00 **I.Drachnev** (NRC "Kurchatov Inst." - PNPI) *The latest Borexino results on the CNO neutrino studies* (25 min)

12.25 **W.Wang** (Sun Yat-sen Univ.) *Overview of JUNO experiment* (25 min)

12.50 **A.Dolgov** (Novosibirsk State Univ. & JINR) *Solution of JWST and HST problems with primordial black holes* (25 min)

13.15 – 15.00 Lunch

15.00 – 16.15 AFTERNOON SESSION (Conference Hall)

15.00 **E.Yakushev** (JINR) *Fundamental physics with reactor neutrinos* (25 min)

15.25 **D.Ponomarev** (JINR) *Status of the ν GeN experiment* (25 min)

15.50 **I.Zhitnikov** (JINR) *Recent results from the DANSS experiment* (25 min)

16.15 – 16.40 Tea break

SESSION 25.08. A (Neutrino experiment)

16.40 **B.Lubsandorgiev** (INR RAS) *Low energy neutrino physics with gallium containing scintillators* (20 min)

17.00 **D.Moore** (Yale Univ.) *Searches for massive neutrinos with mechanical quantum sensors* (20 min)

17.20 **R.Samoilov** (NRC "Kurchatov Inst." - PNPI) *Preparation of the Neutrino-4+ experiment at the SM-3 reactor* (15 min)

17.35 **N.Skrobova** (Lebedev Phys. Inst.) *Measurements of the reactor antineutrino energy spectrum dependence on the fuel composition and absolute antineutrino counting rates* (15 min)

17.50 **O.Razuvaeva** (MEPhI) *The RED-100 results & prospects* (15 min)

18.05 **E.Khalikov** (SINP MSU) *Recent results from SND@LHC* (15 min)

18.20 **A.Majumdar** (Indian Inst. of Science Education and Research Bhopal) *Physics implications of Dresden-II reactor data* (10 min)

SESSION 25.08. B (Dilepton production & Photon measurements)

- 16.40 V.Zygunov** (JINR) *Electroweak corrections to dilepton production via photon fusion at LHC* (20 min)
- 17.00 M.Vysotsky** (Lebedev Phys. Inst.) *Lepton pair production in UPC at LHC* (15 min)
- 17.15 E.Karkaryan** (Lebedev Phys. Inst.) *Muon pair production at the LHC with one proton tagging via $\gamma\gamma$ fusion and γZ fusion* (15 min)
- 17.30 E.Kasyanova** (JINR) *The study of the birth of dimuons in the NA64 experiment* (10 min)
- 17.40 D.Peresunko** (NRC «Kurchatov Inst.») *Real and virtual direct photon measurements with ALICE* (20 min)
- 18.00 P.Krokovny** (Budker Inst. of Nucl. Phys.) *Exotic quarkonium and hadron spectroscopy at Belle II* (15 min)
- 18.15 N.Burmasov** (NRC "Kurchatov Inst." - PNPI) *Results and prospects of two-photon interaction studies with the ALICE experiment at the LHC* (20 min)
- 18.35 M.Alizada** (Baku State Univ.) *Prompt photon production in bremsstrahlung from quark gluon plasma at $\sqrt{s} = 10$ GeV energies* (15 min)

SESSION 25.08. C (Dark matter & g-2)

- 16.40 A.Anokhina** (MSU) *NEWSdm experiment to search for the cosmic ray boosted dark matter* (15 min)
- 16.55 Z.Y. Zhang** (Tsinghua Univ.) *Probing dark matter-electron interactions via high-purity germanium detectors from CDEX* (15 min)
- 17.10 S.Chashin** (SINP MSU) *Direct search for low mass dark matter with DarkSide-50* (15 min)
- 17.25 L.Corona** (INFN, Pisa) *Searches for invisible new particles at Belle II* (15 min)
- 17.40 A.D'yachenko** (Petersburg State Transport Univ. & NRC "Kurchatov Inst." - PNPI) *On the issue of detecting dark matter particles* (15 min)
- 17.55 A.Chaudhuri** (Indian Inst. of Technology) *Dark matter production from two evaporating primordial black holes* (15 min)
- 18.10 A.de Giorgi** (Univ. Aut. Madrid, Inst. Theor. Phys.) *The low-scale seesaw solution to the M_W and $(g-2)_\mu$ anomalies* (20 min)
- 18.30 P.Panda** (Univ. of Hyderabad) *Explaining neutrino phenomenology, leptogenesis and $(g-2)_{e,\mu}$ with $U(1)$ symmetries in inverse seesaw framework* (20 min)

19.00 – 22.30 Sight-seeing bus excursion in Moscow

26 August, Saturday

09.00 – 13.35 MORNING SESSION (Conference Hall)

09.00 **S.Shmatov** (JINR) *CMS overview* (25 min)

09.25 **A.Furs** (INR RAS) *Luminosity determination by ALICE during LHC Run 3* (25 min)

09.50 **E.Kryshen** (NRC "Kurchatov Inst." - PNPI) *Overview of recent ALICE results* (25 min)

10.15 **D.Baigarashev** (JINR) *Latest results and precision measurements from the NA62 experiment* (25 min)

10.40 **J.Milosevic** (Vinča Inst. of Nucl. Science) *Highlights from quark gluon plasma studies in relativistic nuclear collisions* (25 min)

11.30 – 11.55 Tea break

11.55 **K.Han** (Shanghai Jiao Tong Univ.) *Progress and status of neutrinoless double beta decay experiments* (25 min)

12.20 **S.Fu** (Fudan Univ.) *Latest results from the CUORE experiment* (25 min)

12.45 **L.Yang** (Tsinghua Univ.) *Recent status and prospects of CDEX @CJPL* (25 min)

13.10 **M.Dubin** (SINP MSU) *Mixing scenarios, dark matter and lepton universality with three generations of heavy neutral leptons* (25 min)

13.35 – 15.00 Lunch

15.00 – 19.10 AFTERNOON SESSION (Conference Hall)

15.00 **I.Logashenko** (Budker Inst. of Nucl. Phys.) *Measurement of muon $g-2$ at Fermilab* (25 min)

15.25 **G.Fedotov** (Budker Inst. of Nucl. Phys.) *Pion form factor measurement with CMD-3 detector at the electron-positron collider VEPP-2000* (25 min)

15.50 **Sh.-P.He** (APCTP, Pohang) *Scalar leptoquark and vector-like quark extended models as the explanation of the muon $g-2$ anomaly* (25 min)

16.15 **H.Zhang** (Univ. of Science and Technology of China) *R value measurements at BESIII* (20')

16.35 – 17.00 Tea break

SESSION 26.08. A (Colliders)

17.00 **I.Bubanja** (Univ. of Montenegro & Université libre de Bruxelles) *Inclusive production of vector bosons in CMS* (15 min)

17.15 **N.K.Petrov** (MIPT) *New resonances in J/ψ mass spectrum at CMS* (15 min)

17.30 **E.Solodov** (Budker Inst. of Nucl. Phys.) *Study of the $e^+e^- \rightarrow$ hadronic cross sections at the $\bar{N}N$ threshold with CMD-3 detector at VEPP2000 collider* (20 min)

17.50 **A.Botov** (Budker Inst. of Nucl. Phys.) *Study of the e^+e^- annihilation into hadrons with the SND detector at the VEPP-2000 collider* (15 min)

18.05 **N.A.Petrov** (Budker Inst. of Nucl. Phys.) *Study of the process $e^+e^- \rightarrow K_S K_L$ in the center-of-mass energy range 1.05 – 2.0 GeV with the CMD-3 Detector at VEPP-2000 collider* (15 min)

18.20 **S.Tolmachev** (Budker Inst. of Nucl. Phys.) *Study of the $e^+e^- \rightarrow \pi^+\pi^0$ with the CMD-3 detector at the VEPP-2000* (10 min)

18.30 **F.Martynenko** (Samara National Research Univ.) *Hadronic light by light contribution to the fine and hyperfine structure of muonic atoms* (15 min)

18.45 **D.Prokhorova** (Saint-Petersburg State Univ.) *Particle correlations in the model of interacting colour strings for $p+p$ collisions* (10 min)

18.55 **N.Pukhaeva** (JINR) *Femtoscopia study with BM@N data of NICA* (15 min)

SESSION 26.08. B (Seesaw & Double beta decay)

17.00 B.Yu (IHEP) *Sphaleron in the Higgs Triplet Model* (20 min)

17.20 L.Wang (Beijing Normal Univ.) *CDEX-300v: The neutrinoless double beta decay experiment based on 76Ge* (20 min)

17.40 V.Belov (NRC "Kurchatov Inst.") *Searching for Majorana neutrinos with nEXO* (20 min)

18.00 A.Druts koy (Lebedev Phys. Inst.) *Prospects for heavy Majorana neutrino searches at future lepton colliders* (15 min)

18.15 V.Kornoukhov (MEPhI) *Status and perspectives of the AMoRE experiment* (15 min)

SESSION 26.08. C (Design & Constructions)

17.00 Y.Kambar (JINR) *Straw tubes for the NA64 experiment at CERN* (15 min)

17.15 I.Segal (MEPhI) *Methods for centrality determination in heavy-ion collisions with the BM@N experiment* (15 min)

17.30 N.Karpushkin (INR RAS) *Performance of BM@N forward hadron calorimeter and forward quartz hodoscope in $\text{Xe}+\text{CsI}$ @3.8 AGeV run* (15 min)

17.45 S.Morozov (INR RAS) *Development of new high granular neutron time-of-flight detector for BM@N experiment* (15 min)

18.00 Y.Wang (Shandong Univ.) *Fabrications and performance test of ECal modules in China for NICA-MPD experiment* (15 min)

18.15 V.Baryshnikov (JINR) *Status of the time-of-flight and ECal particle identification systems of the MPD Experiment at the NICA Collider* (15 min)

18.30 V.Volkov (INR RAS) *Performance of BM@N scintillation wall in $\text{Xe}+\text{CsI}$ @3.8 AGeV run* (15 min)

19.00-20.00

Conference Hall

The 15th International School on Neutrino Physics and Astrophysics

MOVIE

Dedicated to the 110th Anniversary of Bruno Pontecorvo: "Maksimovich. The Story of Bruno Pontecorvo"

Screenwriter Giuseppe Mussardo

Directed by Diego Cenetempo

27 August, Sunday

9.00 – 19.00 Bus excursion to Sergiev Posad

28 August, Monday

The 15th International School on Neutrino Physics and Astrophysics

09.00 – 13.40 MORNING SESSION (Conference Hall)

- 09.00 **J.W.F. Valle** (IFIC, Valencia) *Neutrinos: At the dawn of a revolution?* (25 min)
09.25 **C.Ternes** (INFN, Turin) *Global neutrino oscillation fits and neutrino anomalies* (25 min)
09.50 **L.Kolupaeva** (JINR) *Current status and future prospects of three-flavor oscillations with accelerator neutrino beams* (25 min)
10.15 **M.Dvornikov** (IZMIRAN) *Neutrino oscillations in gravitational fields* (25 min)
10.40 **D.Gorbunov** (INR RAS) *Testing nuMSM with present and next generation experiments* (25 min)

11.05 – 11.30 Tea break

- 11.30 **V.Petrov** (NRC "Kurchatov Inst." - IHEP) *Strong interactions in historical perspective: From nuclear structure to multiquarks* (25 min)
11.55 **A.Isaev** (MSU) *Generalized Bargmann-Wigner construction for massive and massless relativistic fields* (25 min)
12.20 **A.Kataev** (INR RAS) *The generalized Crewther relation and V-scheme in QCD and theoretical consequences* (20 min)
12.40 **K.Stepanyantz** (MSU) *Quantum corrections and exact results in supersymmetric theories regularized by higher covariant derivatives* (20 min)
13.00 **V.Marachevsky** *Chern-Simons boundary layers in the Casimir effect* (20 min)
13.20 **N.Raicevic** (Univ. of Montenegro) *The impact of intrinsic motion of partons in Drell-Yan production at NLO with the Parton Branching Method* (20 min)

13.40 – 15.00 Lunch

SESSION 28.08. A1 (Neutrino & Astroparticle physics)

- 15.00 **A.Antoshkin** (JINR) *Searches for exotic physics in the NOvA experiment* (25 min)
15.25 **N.Titov** (INR RAS) *Search for heavy sterile neutrinos in the integral mode electron registration* (15 min)
15.40 **V.Galkin** (MSU) *SPHERE-3: tackling the problem of primary cosmic ray mass composition with a new approach* (20 min)
16.00 **M.Amelchakov** (MEPhI) *Cosmic-ray anisotropy study by means of detection of muon bundles* (20 min)
16.20 **S.Mayburov** (Lebedev Phys. Inst.) *Search of periodic and unperiodic variations of nucleus weak decay parameters* (15 min)
16.35 **A.Shehada** (Chechen State Pedagogical Univ.) *New approach of explaining the missing sources of UHE neutrinos as an effect of approaching Planck length* (10 min)

16.45 – 17.10 Tea break

SESSION 28.08. A2 (QCD & BSM)

- 17.10 **P.Pronin** (MSU) *Higher derivative quantum gravity in general parametrization and general gauge conditions* (20 min)
17.30 **R.Rogalyov** (NRC "Kurchatov Inst." - IHEP) *Net-baryon probability distributions from lattice simulations* (20 min)
17.50 **V.Borniyakov** (NRC "Kurchatov Inst." - IHEP) *Lattice QCD with $N_c=2$ at nonzero temperature and quark density* (20 min)

18.10 V.Velizhanin (NRC "Kurchatov Inst." - PNPI) *The anomalous dimension of twist-3 operators in $N=4$ SYM theory* (15 min)

18.25 V.Shirokova (MSU) *Multiloop calculations of beta-function of $N=1$ supersymmetric theories, regularized by higher derivatives* (10 min)

18.35 O.Haneychuk (MSU) *Three-loop β -functions and a class of the NSVZ schemes for MSSM obtained with the help of the higher covariant derivative regularization* (10 min)

18.45 A.Aynbund (MIPT) *Supersymmetric proof to count bound state nodes* (10 min)

SESSION 28.08. B1 (Holographic principle & Physics at accelerators. Theory)

15.00 R.Ryutin (NRC "Kurchatov Inst." - IHEP) *Exclusive central diffractive production of hadron pairs in the Regge eikonal model at energies from 30 GeV to 13 TeV* (15 min)

15.15 A.Hajilou (Steklov Mathematical Inst. RAS) *Magnetic catalysis in holographic model with two types of anisotropy for heavy quarks* (10 min)

15.25 P.Slepov (Steklov Mathematical Inst. RAS) *Energy loss for heavy quarks in strong magnetic field* (15 min)

15.40 K.Rannu (Peoples' Friendship Univ. of Russia) *On the role of the \mathcal{R}^2 term in the metric strain coefficient for the holographic description of magnetic catalysis in a quark-gluon plasma* (10 min)

15.50 M.Usova (Steklov Mathematical Inst. RAS) *Holographic RG flows for light and heavy quarks models* (10 min)

16.00 V.Kuzminov (INR RAS) *Seasonal changes of the ^{212}Po half-life solar-daily variation parameters* (20 min)

16.45 – 17.10 Tea break

SESSION 28.08. B2 (Physics at accelerators. Theory)

17.10 V.Vechernin (Saint-Petersburg State Univ.) *Cumulative production at central rapidities and large transverse momenta in the quark model of flucton fragmentation* (20 min)

17.30 A.Egorov (NRC "Kurchatov Inst." - PNPI & Peter the Great St. Petersburg Polytec. Univ.) *The next-to-leading approximation of BFKL for dijet production with large rapidity separation between jets at the LHC* (20 min)

17.50 U.Voznaya (JINR) *Electron parton distribution functions* (15 min)

18.05 P.Volkov (MSU) *Neural network techniques for a separation of top pair and single top contributions in tWb final state* (15 min)

18.20 A.Machavariani (JINR) *Relativistic partial wave analysis of inclusive meson production $A+B \rightarrow V+X \rightarrow I+2+X$ and determination of the spin quantization axis via the cross sections $A+B \rightarrow V+X$* (20 min)

SESSION 28.08. C1 (Mesons)

15.00 M.Sergeev (MEPhI) *Recent CMS results on rare heavy flavour decays* (20 min)

15.20 K.Ivanov (MIPT) *CMS results on heavy flavour spectroscopy and production* (15 min)

15.35 Y.Ji (Shandong Univ.) *Light meson decays at BESIII* (15 min)

15.50 M.Malaev (MIPT & NRC "Kurchatov Inst." - PNPI) *Feasibility studies for the measurements of open heavy-flavor mesons with ALICE-3 at the HL-LHC* (20 min)

16.10 Z.Lei (Univ. of Science and Technology of China) *Light flavor vector mesons between 2 and 3 GeV at BESIII* (20 min)

16.30 I.Ray (IIT Gandhinagar) *Extraction of $|V_{ub}|$ from $B \rightarrow \pi l \nu$* (15 min)

16.45 – 17.10 Tea break

17.10 L.Ying (Lanzhou Univ.) *Charmed baryon decays at BESIII* (20 min)

17.30 X.Wang (Lanzhou Univ.) *Hyperon physics at BESIII* (20 min)

17.50 O.Bakina (JINR) *Study of charmonia production in e^+e^- annihilation at center-of-mass energies above 3.81 GeV* (20 min)

18.10 F.Meier (Duke Univ.) *Hadronic B decays at Belle II* (20 min)

18.30 E.Savchenko (MSU & FRC CSC RAS) *Relativistic description of fully heavy tetraquark spectroscopy* (15 min)

18.45 A.Polyarush (INR RAS) *Study of $K^+ \rightarrow \pi^0 e^+ \nu \gamma$ decay with OKA setup* (15 min)

19.00 I.Tiurin (NRC "Kurchatov Inst." - IHEP) *$K^+ \rightarrow \pi^0 \mu^+ \nu \gamma$ radiative decay: preliminary results from the OKA experiment* (10 min)

19.10 A.Kulik (INR RAS) *Observation of $K^+ \rightarrow \pi + \pi^0 \pi^0 \gamma$ decay* (15 min)

29 August, Tuesday

09.00 – 13.35 MORNING SESSION (Conference Hall)

09.00 A.Zakharov (NRC "Kurchatov Inst." & BLTP JINR) *Black hole shadows as new tests of general relativity* (25 min)

09.25 D.Levkov (INR RAS & ITMP) *Self-similar growth of axion stars* (25 min)

09.50 D.Galtsov (MSU) *Black hole thermodynamics and S-duality* (25 min)

10.15 E.Arbuzova (Dubna State Univ. & Novosibirsk State Univ.) *High frequency curvature oscillations at gravitational baryogenesis and UHECR emission* (25 min)

10.40 V.Dokuchaev (INR RAS) *Cosmological particle creation in Weyl geometry* (25 min)

11.05 – 11.30 Tea break

11.30 D.Peshkxonov (JINR) *The NA64 experiment - search for hidden sector at CERN SPS* (25 min)

11.55 D.Kirpichnikov (INR RAS) *Current status and prospects of NA64 experiment* (25 min)

12.20 S.Vasina (JINR) *First physics results from the FASER experiment* (20 min)

12.40 P.Jiang (Peking Univ.) *Dark sector and axion-like particle search at BESIII* (20 min)

13.00 M.Savina (JINR) *Dark matter searches at CMS* (20 min)

13.20 I.Aref'eva (Steklov Math. Inst.) *Holography for heavy ions collisions* (25 min)

13.45 – 15.00 Lunch

SESSION 29.08. A1 (Cosmology & Extra-dimensions)

15.00 A.Garat (Univ. of the Republic, Uruguay) *Timelike and spacelike vectors transform into null vectors through local gauge transformations in particle physics* (20 min)

15.20 B.Levchenko (SINP MSU) *Extra dimensions of space and time in the region of deeply inelastic processes* (20 min)

15.40 Y.Grats (MSU) *Casimir interaction of finite-width strings* (15 min)

15.55 P.Spirin (MSU) *Kapteyn type-II series in the synchrotron radiation problem* (15 min)

16.10 A.Reshetnyak (Tomsk State Pedagog. Univ. & Nat. Research Tomsk Polytec. Univ.) *Covariant consistent Lagrangian cubic interaction vertices for irreducible higher spin fields in Minkowski backgrounds* (15 min)

16.25 M.Fil'chenkov (RUDN Univ.) *Quantum cosmology in 3-geometry superspace* (15 min)

16.40 S.Yakimenko (INR RAS) *A way to construct octonion matrices* (10 min)

17.00– 17.25 Tea break

SESSION 29.08. A2 (Theory)

17.25 S.Lebedev (Surgut State Univ.) *Polarization through the elastic scattering in magnetic field* (15 min)

17.40 A.Eskin (Samara National Research Univ.) *Investigation of energy levels of exotic three-particle systems in the variational approach* (15 min)

17.55 A.A.Abd Aljalel (Novosibirsk State Univ.) *Majorana transformation of the Thomas–Fermi equation demystified* (15 min)

18.10 N.Kolomoyets (JINR) *Correlations of the velocities and of the vorticities for nucleons and pions in PHSD model* (15 min)

18.25 V.Maslov (INR RAS & ITMP & MSU) *Analytic description of large scalar oscillons* (10 min)

18.35 R.Shindin (JINR) *Bessel and Spin* (15 min)

18.50 D.Tsousis (Univ. of Patras) *Modeling of the structure of hadrons and bosons via the Rotating Lepton Model of Elementary Particles* (10 min)

SESSION 29.08. C1 (Heavy ion collisions)

15.00 S.Petrushanko (MSU) *Latest results on heavy-ion physics with the CMS detector* (20 min)

15.20 D.Myagkov (MSU) *Azimuthal anisotropy in Xe–Xe and Pb–Pb collisions with the Monte-Carlo model HYDJET++ and the CMS detector at the energies of the LHC* (10 min)

15.30 U.Dmitrieva (INR RAS) *Studies of electromagnetic dissociation of ^{208}Pb in ALICE experiment at the LHC* (15 min)

15.45 M.Tokarev (JINR) *Statistical properties of fractal entropy of K_S^0 -meson production in Au+Au collisions at RHIC* (20 min)

16.05 A.Shabanov (INR RAS) *Measurement of π^0 yield in Ag+Ag collisions at 1.23 A GeV beam energy* (20 min)

16.25 M.Abed (Tomsk Polytech. Univ.) *The effect of the non-Gaussian tail population on the electromagnetic beam-beam interaction between colliding beams in RHIC* (15 min)

16.40 D.Larionova (Saint-Petersburg State Univ.) *PHENIX highlights* (20 min)

17.00 – 17.25 Tea break

SESSION 29.08. C2 (Heavy ion collisions)

17.25 P.Parfenov (MEPhI) *Anisotropic flow and its scaling properties at Nuclotron-NICA energies* (15 min)

17.40 E.Bannikov (St.Petersburg Polytech. Univ.) *Measurements of π^0 elliptic flow in Cu+Au collisions* (20 min)

18.00 V.Troshin (MEPhI) *Performance of FFD detector for anisotropic flow analysis with the MPD experiment* (15 min)

18.15 M.Mamaev (MEPhI & INR RAS) *On the proton directed and elliptic flow in the few-GeV heavy ion collisions with BM@N* (20 min)

18.35 N.Abdulameer (Univ. of Debrecen) *Centrality dependence of direct γ and π^0 production in d+Au collisions* (10 min)

18.45 A.Pashkov (LLC Digitizer) *Recording electronics for particle physics: The data collection, digitization and processing* (10 min)

18.55 I.Bredikhin (LLC Digitizer) *Development of a software and hardware complex for the search and identification of gamma-emitting nuclides based on machine learning* (10 min)

30 August, Wednesday

09.00 – 13.35 MORNING SESSION (Conference Hall)

09.00 C.Vayenas (Univ. of Patras) *Hadronization via gravitational confinement of fast neutrinos: mechanics at fm distances* (25 min)

09.25 V.Braguta (JINR) *Influence of relativistic rotation on QCD properties* (25 min)

09.50 O.Kodolova (MSU) *QCD physics with CMS detector* (25 min)

10.15 Y.Kharlov (NRC "Kurchatov Inst." - IHEP) *Overview of QCD studies in ALICE at LHC* (25 min)

10.40 Y.Zhang (Univ. of Science and Technology of China) *Light QCD exotics at BESIII* (25 min)

11.05 – 11.30 Tea break

ROUND TABLE DISCUSSION "Frontiers in Particle Physics" (Conference Hall)

11.30 D.Meloni (Rome Univ.) *Modular symmetries and the flavor problem* (25 min)

11.55 R.Mohanta (Univ. of Hyderabad) *Flavour anomalies, light dark matter and rare B decays with missing energy in $L_\mu - L_\tau$ model* (25 min)

12.20 T.Roy (TATA Inst. of Fundamental Research) *ALPS physics* (25 min)

12.45 A.Fedynitch (Inst. of Physics, Academia Sinica & Tokyo Univ.) *Progress in high-energy neutrino flux calculations* (25 min)

13.10 V.Neznamov (RFNC-VNIIEF) *Quantum electrodynamics with empty fermion vacuum without "sea" of states with negative energies and with opposite signs of mass summands in Dirac equations for particles and antiparticles: Possibilities of experimental verification* (25 min)

13.35 – 15.00 Lunch

15.00 Q.Liu (Univ. of CAS) *The progress of Super Tau Charm Facility in China* (25 min)

15.25 I.Logashenko (Budker Inst. of Nucl. Phys.) *The progress of Super Charm Tau Factory in Russia* (25 min)

15.50 S.Gertsenberger (JINR) *Lepton flavor violation study in the NA64 experiment* (20 min)

16.10 R.Chistov (Lebedev Phys.Inst.) *Searches for lepton flavor universality violation at CMS* (20 min)

16.30 C.Schwanda (IHEP, Austria) *Semileptonic decays and tests of lepton flavour universality at Belle II* (20 min)

16.50 V.Rekovic (Vinča Inst. of Nucl. Science) *Triggering in the LHC experiments* (25 min)

17.15 P.Huber (Virginia Tech.) *Neutrinos and nuclear security* (25 min)

Closing of the 21st Lomonosov Conference on Elementary Particle Physics

SPECIAL SESSION (40⁰)

POSTER Session

M.Ostashova (SAI MSU) *Fractal properties of the stellar medium in the solar neighborhood based on GAIA DR2 data*

A.Budzinskaya (INR RAS) *Stages of simulation of the prototypes of the Baksan Large Neutrino telescope*

V.Ashikhmin (INR RAS) *Background and Signal Simulation for cluster detection in the LVD*

A.Soheilbeigi Bazgir (Jan Kochanowski Univ.in Kielce) *Imprints of clustering in multiplicity fluctuations*

A.Purtova (MSU) *The influence of neutrino quantum decoherence on collective neutrino oscillations*

A.Popov (MSU) *Wave packet treatment of neutrino flavour and spin oscillations in galactic and extragalactic magnetic fields*

E.Kovalevskaia (MSU) *Electromagnetic effects in deep inelastic neutrino-proton scattering*

A.Nikolaeva (MSU) *Propagation and oscillations of cosmic neutrinos in a stochastic magnetic field*

F.Lazarev (MSU) *Elastic neutrino-nucleon scattering: The effects of neutrino electromagnetic properties and polarization*

N.Dolganov (MSU) *Neutrino oscillations in external environment*

A.Grigoriev (MIPT) *Neutrino spin states in moving matter and the effect of neutrino spin light*

A.Lichkunov (MSU) *Neutrino oscillation accounting for interaction with axion-like particles*

K.Stankevich (MSU) *Quantum decoherence of neutrino mass states due to neutrino interaction with an external environment*

M.Vyalkov (MSU & NCPM, Sarov) *The Sarov experiment for probing coherent elastic neutrino-atom scattering and neutrino electromagnetic interactions*

A.Yukhimchuk (VNIIEF & NCPM, Sarov) *Status and prospects of implementation of the Sarov tritium neutrino experiment*

S.Sedov (Sarov State Phys. Techn. Inst.) *Analog of Weyl meson as analog of the dark photon*