

International Conference on Particle Physics and Cosmology
dedicated to memory of Valery Rubakov

Program

A. Alikhanyan National Laboratory, Yerevan, Armenia

2-7 October 2023

Monday, 2 October

Opening (Room 1) 9:45-10:00

Plenary Session (Room 1) 10:00-13:25

1. *Vahe Gurzadyan (AANL)*
Hubble tension, modified gravity and satellite testing
General Relativity 30+5 min
2. *Mikhail Shaposhnikov (EPFL)*
Sterile Neutrino Dark Matter, Matter-Antimatter Separation,
and the QCD Phase Transition 30+5 min

Coffee Break 11:10-11:40

3. *George Lavrelashvili (TSU)*
New Euclidean axion wormholes 30+5 min
4. *Arkady Vainshtein (U of Minnesota)*
Instanton Calculus, Spectral Flow and Beta Functions 30+5 min
5. *Glennys Farrar (NYU)*
Possible stable sexaquark 30+5 min

Lunch 13:25-15:30

Parallel Session 1 (Room 1) 15:30-16:45

1. *Maxim Fitkevich (INR & MIPT)*
Real-time path integral for semiclassical description of
evaporating black holes 20+5 min
2. *Anna Tokareva (HIAS)*
Unitarity bounds on effective field theories 20+5 min
3. *Bulat Farkhtdinov (INR & MIPT)*
Suppression exponent for multiparticle production in $\lambda\varphi^4$ theory 20+5 min

Parallel Session 2 (Room 2) 15:30-16:45

1. *Dmitry Gorbunov (INR)*
Pulsar timing signals from an innverse phase transition in the
early Universe 20+5 min
2. *Marine Samsonyan (AANL)*
Gravitational waves as waveguides 20+5 min
3. *Gleb Suzdalov (MSU & INR)*
MODELING GRAVITATIONAL WAVE EMISSION IN THE
POST-INFLATIONARY UNIVERSE 20+5 min

Parallel Session 3 (Room 3) 15:30-16:45

1. *Vyacheslav Spiridonov (JINR & NRU HSE)*
Superconformal indices and special functions 20+5 min
2. *Zurab Silagadze (BINP)*
Analytical solution of the Sommerfeld-Page equation 20+5 min

Coffee Break 16:45-17:15

Memorial Session (Room 1) 17:15-19:30

Welcome Party 19:30-21:30

Tuesday, 3 October

Plenary Session (Room 1) 10:00-13:25

1. *Wilfried Buchmueller (DESY)*
Metastable cosmic strings 30+5 min
2. *Viatcheslav Mukhanov (LMU)*
Discrete Gravity 30+5 min

Coffee Break 11:10-11:40

3. *Larry McLerran (INT U of Washington)*
Cold Matter at Very High Baryon Density 30+5 min
4. *Geraldine Servant (DESY)*
Electroweak baryogenesis: 38 years later 30+5 min
5. *Gia Dvali (LMU & MPI)*
Saturons 30+5 min

Lunch 13:25-15:30

Parallel Session 1 (Room 1) 15:30-18:55

1. *Sergey Godunov (LPI)*
Muon pair production via the photon fusion at the LHC:
weak interaction corrections 20+5 min
2. *Anna Danilina (MSU)*
 B_c - mesons decays in the SM 20+5 min
3. *Sergei Kholodenko (INFN-Pisa)*
Recent results and prospects of the NA62 experiment at CERN 20+5 min

Coffee Break 16:45-17:15

4. *Kento Asai (U of Tokyo)*
Sub-GeV dark matter search at ILC beam dumps 20+5 min
5. *Alexey Zhevlakov (JINR)*
Lepton flavor phenomenology of dark photon 20+5 min
6. *Igor Krasnov (INR)*
HNL see-saw: lower mixing limit and pseudodegenerate state 20+5 min

Parallel Session 2 (Room 2) 15:30-18:55

1. *Elena Arbuzova (DSU & NSU)*
Curvature oscillations in modified gravitational baryogenesis and high energy cosmic rays 20+5 min
2. *Alexander Dolgov (NSU & JINR)*
Lifting tension of HST and JWST data with conventional cosmology by PBHs 20+5 min
3. *Yann Gouttenoire (Tel Aviv U)*
Primordial black holes from supercooled phase transition 20+5 min

Coffee Break 16:45-17:15

4. *Anton Chudaykin (U of Geneva)*
Non-perturbative probability distribution function for cosmological counts in cells 20+5 min
5. *Andrey Shkerin (U of Minnesota)*
Thermal false vacuum decay around black holes 20+5 min
6. *Ratmir Gazizov (MSU)*
False vacuum decay around a black hole 20+5 min

Parallel Session 3 (Room 3) 15:30-18:55

1. *Mikhail Vasiliev (LPI)*
Recent progress in higher-spin theory 20+5 min
2. *Alexey Isaev (JINR & MSU)*
Generalized Wigner operators and massless relativistic fields 20+5 min
3. *Nikita Kolganov (MIPT & ITMP MSU & LPI)*
Nonequilibrium Gaussian QFT and its analytic properties 20+5 min

Coffee Break 16:45-17:15

4. *Victor Chernyak (BINP)*
Phase transitions between confinement and higgs phases in $\mathcal{N} = 1SU(N_c)$ SQCD with $1 \leq N_F \leq N_c - 1$ quark flavors 20+5 min
5. *Nikita Zaigraev (MIPT & JINR)*
N=2 higher spin theories and harmonic superspace 20+5 min
6. *Karapet Mkrtchyan (ICL)*
On democratic formulation of field theory and electric-magnetic duality 20+5 min
7. *Wladyslaw Wachowski (LPI)*
Heat kernel expansions for higher order and nonminimal operators 20+5 min

Wednesday, 4 October

1. *Mikhail Danilov (LPI)*
Status of sterile neutrino searches 30+5 min
2. *Ivan Logashenko (BINP)*
Measurement of pion formfactor by CMD-3 and its
implications to hadronic contribution to muon ($g-2$) 30+5 min

Coffee Break 11:10-11:40

Parallel Session 1 (Room 1) 11:40-18:55

1. *Roman Nevzorov (LPI)*
Cold Dark Matter in the SE6SSM 20+5 min
2. *Alexander Belyaev (U of Southampton)*
Towards decoding the nature of Dark Matter 25+5 min
3. *Dmitrii Kalashnikov (INR)*
New Physics at NICA 20+5 min
4. *Ekaterina Kriukova (INR & MSU)*
Dark photon emission in elastic proton bremsstrahlung 20+5 min

Lunch 13:25-15:30

5. *Victor Fadin (BINP)*
Colour structure of three-reggeon cuts in QCD 20+5 min
6. *Andrej Arbuzov (JINR)*
Parton distribution functions in QED 20+5 min
7. *Oleg Antipin (RBI)*
Standard model at Large Charge 20+5 min

Coffee Break 16:45-17:15

8. *Alexander Parkhomenko (YarSU)*
Photon Polarization Operator in External Electromagnetic Field
with Account of Virtual-Fermion AMM 20+5 min
9. *Petr Satunin (INR)*
Resonant generation of electromagnetic modes in nonlinear
electrodynamics: Quantum perturbative approach 20+5 min
10. *Andrey Sharofeev (INR & MSU)*
Shower formation constraints on cubic Lorentz Invariance
Violation parameters in quantum electrodynamics 20+5 min

Parallel Session 2 (Room 2) 11:40-18:55

1. *Zurab Berezhiani (U L'Aquila & LNGS)*
Matter, dark matter and antimatter in the Universe and the origin of antinuclei in cosmic rays 20+5 min
2. *Nikolay Pozdnyakov (NSU)*
Leptogenesis via absorption by primordial black holes 20+5 min
3. *Inar Timiryasov (NBI, U of Copenhagen)*
Low-scale leptogenesis via neutrino oscillations 20+5 min
4. *Andrey Shavrin (SPbU)*
First order phase transitions within holographic approach in application to baryon asymmetry problem 20+5 min

Lunch 13:25-15:30

5. *Masato Yamanaka (Hosei U)*
Impact of Higgspllosion on relic density of dark matter 20+5 min
6. *Rinat Kagirov (INR)*
Model of inflation without singularity 20+5 min

Coffee Break 16:45-17:15

8. *Santosh Lohakare (BITS-Pilani)*
Observational constrained $F(R, G)$ gravity cosmological model and the dynamical system analysis 20+5 min
9. *Luiz Garcia de Andrade (UERJ)*
Conformal gauge gravity and hyperdynamos from torsion trace 20+5 min
10. *Shuichi Yokoyama (Ritsumeikan U)*
What is the correct definition of entropy for general relativistic field theory? 20+5 min

Parallel Session 3 (Room 3) 11:40-19:20

1. *Nickolay Martynenko (MSU & INR)*
On the contribution of cosmic-ray interactions in the Galactic halo to the observed neutrino flux 20+5 min
2. *Polina Kivokurtseva (MSU & INR)*
Neutrino production in blazar radio cores 20+5 min
3. *Ibragim Alikhanov (NCFU)*
Novel channels with the Glashow resonance 20+5 min

Lunch 13:25-15:30

Coffee Break 16:45-17:15

5. *Dmitry Levkov (INR & ITMP MSU)*
Solar mass black holes from neutron stars and bosonic dark matter 20+5 min
6. *Boris Stern (INR)*
The diversity of Gamma-Ray Bursts: from precursor to afterglow 20+5 min
7. *Grigory Rubtsov (INR)*
Constraints on the extragalactic magnetic field from gamma-ray observations of GRB 221009A 20+5 min
8. *Mikhail Kuznetsov (INR)*
A new bound on UHECR source number density from detection of the highest energy cosmic rays 20+5 min

Friday, 6 October

Plenary Session (Room 1) 10:00-13:25

1. *Andrei Linde (Stanford U) Online talk*
Cosmological α -attractors, CMB, and PBH 30+5 min
2. *Renata Kallosh (Stanford U) Online talk*
Status of UV divergences in maximally supersymmetric theories 30+5 min

Coffee Break 11:10-11:40

3. *Neil Turok (U of Edinburgh & PI) Online talk*
A minimal SM/LCDM cosmology 30+5 min
4. *Ruth Gregory (KCL) Online talk*
Acceleration and Black Hole Thermodynamics 30+5 min
5. *Dam Thanh Son (Chicago U) Online talk*
Tkachenko mode and noncommutative field theory 30+5 min

Lunch 13:25-15:30

Parallel Session 1 (Room 1) 15:30-18:55

1. *Yury Kudenko (INR)*
Recent results and prospects of LBL accelerator experiments 20+5 min
2. *Anatolii Serebrov (NRC KI - PNPI)*
The result of the Neutrino-4 experiment, sterile neutrinos,
dark matter and the Standard Model 30+5 min
3. *Ara Ioannisyian (YerPhI)*
Oscillations of sub-GeV neutrinos in matter 20+5 min

Coffee Break 16:45-17:15

4. *Victor Mishnyakov (LPI & MIPT)*
Position space approach to banana Feynman diagrams 20+5 min
5. *Dmitry Ageev (SMI)*
Entanglement islands and black holes 20+5 min
6. *Damir Sadekov (MIPT)*
Effective mass of the graviton in de Sitter space 20+5 min
7. *Lev Astrakhantsev (MIPT)*
Non-abelian fermionic T-duality in supergravity 20+5 min

Parallel Session 2 (Room 2) 15:30-18:55

1. *Aleksandr Chatrchyan (DESY)*
Stochastic relaxation of the electroweak scale 20+5 min
2. *Denis Tolkachev (JINR)*
Effective potentials in inflationary cosmology 20+5 min
3. *Alexander Tepliakov (IKBFU)*
Some aspects of Tsallis Holographic dark energy 20+5 min

Coffee Break 16:45-17:15

4. *Marcin Badziak (U of Warsaw)*
Astrophobic QCD axion 20+5 min
5. *Cem Eröncel (ITU)*
Axion-like particle dark matter: Beyond the standard paradigm 20+5 min
6. *Ekaterina Dmitrieva (INR)*
The effects of the birth of particles in the field of waves of high intensity 20+5 min
7. *Dmitry Salnikov (INR & MSU)*
Light-shining-through-wall cavity setups for probing ALPs 20+5 min

Parallel Session 3 (Room 3) 15:30-18:55

1. *Alexander Zakharov (JINR & NRC KI - ITEP)*
New general relativity tests 20+5 min
2. *Alexey Toporensky (SAI MSU)*
General radially moving references frames in the black hole background 20+5 min
3. *Eugeny Babichev (IJCLab)*
Shrouded black holes in Einstein-Gauss-Bonnet gravity 20+5 min

Coffee Break 16:45-17:15

4. *S. Habib Mazharimousavi (EMU)*
Topologically Quantized Black Hole 20+5 min
5. *Alexey Golovnev (BUE)*
Geometric ways of modifying gravity 20+5 min
6. *Arina Shtennikova (INR)*
Stable solutions in Horndeski theory 20+5 min

Saturday, 7 October

Plenary Session (Room 1) 10:00-11:10

1. *Dmitry Kazakov (BLTP JINR)*
Non-renormalizable interactions 30+5 min
2. *Leonardo Senatore (ETH Zurich)*
Positivity bounds on effective field theories with spontaneously broken Lorentz invariance 30+5 min

Coffee Break 11:10-11:40

Parallel Session 1 (Room 1) 11:40-16:55

1. *Sergey Troitsky (INR)*
High-energy photons from distant sources, particle physics and cosmology 20+5 min
2. *Maria Kudenko (INR)*
Towards new tests of cosmic-ray correlations with BL Lac type objects 20+5 min
3. *Simon Sotirov (MSU)*
General constraints on sources of high-energy cosmic rays from the interaction losses 20+5 min
4. *Nikita Petrov (BINP)*
Mass composition of 1-100 PeV cosmic rays with KASCADE and machine learning 20+5 min

Lunch 13:25-15:30

5. *Vladislav Barinov (INR)*
All-sky limits on Sterile Neutrino Galactic Dark Matter 20+5 min
6. *Aidar Ilyasov (NRC KI & NRNU MEPhI)*
Recent results on a machine learning approach to event position reconstruction in the DEAP-3600 Dark Matter Search Experiment 20+5 min
7. *Daniil Davydov (INR)*
Testing universal dark-matter caustic rings with galactic rotation curves 20+5 min

Parallel Session 2 (Room 2) 11:40-16:45

1. *Emin Nugaev (INR)*
Effective potential in Friedberg-Lee-Sirlin model 20+5 min

2. *Vasily Maslov (INR)*
Monodromy oscillons: an effective analytic description 20+5 min
3. *Alexander Panin (INR)*
Bose stars 20+5 min
4. *Anton Dmitriev (INR)*
Self-similar growth of Bose stars 20+5 min

Lunch 13:25-15:30

5. *Andrey Mironov (LPI)*
Little review of matrix models 20+5 min
6. *Alexander Libanov (MSU & INR)*
Q-balls and LIGO/VIRGO gravitational wave signals 20+5 min
7. *Maximilian Bachmaier (LMU & MPP)*
Radiation Emission during the Erasure of Magnetic Monopoles 20+5 min

Parallel Session 3 (Room 3) 11:40-16:45

1. *Alexander Kurov (LPI)*
Asymptotic freedom in (3+1)-dimensional projectable Horava gravity 20+5 min
2. *Juan Mauricio Valencia Villegas (ITMP MSU)*
Stability of nonsingular Cosmologies in Galileons with Torsion 20+5 min
3. *Laxmipriya Pati (U of Tartu)*
Stability of symmetric teleparallel scalar-tensor cosmologies with alternative connections 20+5 min
4. *Sergey Mironov (INR & ITMP MSU)*
Global stability in Horndeski theory and beyond 20+5 min

Lunch 13:25-15:30

5. *Victoria Volkova (INR)*
Wormholes in scalar-tensor theories 20+5 min
6. *Julia Ageeva (INR)*
On the strong coupling problem in cosmologies with “strong gravity in the past” 20+5 min
7. *Pavel Petrov (INR)*
Generating cosmological perturbations at Horndeski bounce 20+5 min

Coffee Break 16:45-17:15

Plenary Session (Room 1) 17:15-18:40

3. *Arkady Tseytlin (ICL & ITMP MSU)*
AdS/CFT, Wilson loops and M2-branes 30+5 min
4. *Andrei Barvinsky (LPI)*
Valery Rubakov and quantum cosmology: origin of the Universe 30+5 min
5. *Petr Tinyakov (ULB)*
Constraints on primordial black holes from observation of stars 30+5 min

Closing (Room 1) 18:40-18:45