

Evolving Universe: Theory and Observations

Starobinsky Memorial Conference

October 7-12, 2024, Yerevan, Armenia

Program

A. Alikhanyan National Laboratory, Yerevan State
University

Monday, 7 October

Opening 9:45–10:00

Invited talks (40+5 min) 10:00–13:30

Chair Alexander Kamenshchik

Alexander Dolgov (NSU, JINR)

Inflationary creation of primordial black holes

Vahe Gurzadyan (AANL, YSU)

Structure formation in the local Universe and the Hubble tension

Coffee Break 11:30–12:00

Ignazio Ciufolini (Sapienza U)

Tests of Gravitational Physics and GR with Satellite Laser Ranging

Alexander Belyaev (Southampton U)

Probing Lambda-Gravity with Bose-Einstein Condensate

Lunch 13:30–15:30

Contributed talks (20+5 min) 15:30–18:50

Chair Salvatore Capozziello

Sergei Vernov (SINP MSU)

Integrable cosmological models with nonminimally coupled scalar fields

Oleg Zaslavski (Kharkov U)

General approach to high energy collisions near black holes

Genly Leon Torres (Universidad Catolica del Norte, Chile)

Can $f(R)$ gravity isotropise a pre-bounce contracting universe?

Coffee Break 16:45–17:15

Adam Riess (STSI)

What JWST Reveals about the Hubble Tension, *invited*

Hector Fernandez Melendez (Southampton U)

Gravity vs Bose-Einstein Condensate

Gabriele Gionti, S.J. (Specola Vaticana)

Spherically Symmetric Geometrodynamics in the Jordan and Einstein Frames

Memorial Session 18:50–20:30

Kip Thorne (Caltech), **Rashid Sunyaev** (SRI, MPI Astr.), **Andrei Linde** (Stanford U) and others

Welcome Party 20:30–22:00

Tuesday, 8 October

Invited talks 10:00–13:30

Chair Alexander Dolgov

Viatcheslav Mukhanov (LMU)

Gravitationally dominated instantons

Alexander Kamenshchik (Bologna U)

Divergences in quantum field theory and singularities in cosmology – some remarks

Coffee Break 11:30–12:00

Salvatore Capozziello (Napoli U)

Going beyond the standard LCDM model by cosmography

Dmitry Gorbunov (INR)

Gravitational waves from evolving domain wall network

Lunch 13:30–15:30

Contributed talks 15:30–18:30

Chair Dmitry Galtsov

Artur Hakobyan (AANL)

Constraining type Ia supernova progenitors using dynamical age tracers in host galaxy discs

Alexei Toporensky (SAI MSU)

Generality of Starobinsky inflation in the case of positive spatial curvature

Polina Petriakova (Bologna U)

IR finite correlation functions in de Sitter space, a smooth massless limit, and an autonomous equation

Coffee Break 16:45–17:15

Norayr Galikyan (MEPHI, AANL)

Neural Network Analysis of S-Stars Dynamics

Liubov Panasenko (NSU)

Gertsenshtein effect in cosmology and its influence on the spectrum of high- and low-frequency relic gravitational waves

Nikita Avdeev (SAI MSU)

Comparison numerical and slow-roll predictions in EGB theory

Wednesday, 9 October

Contributed talks 10:00–13:00

Chair Ignazio Ciufolini

Alexander Belyaev (Southampton U)

The Physics of Fermionic Portal to Vector Dark Matter

Sergio Luigi Cacciatori (Insubria U)

New Observational test for a class of General Relativistic Models of disk galaxies

Victor Vedenyapin (Keldysh IAM)

Vlasov-type Equations and Applications to Cosmology

Coffee break 11:15–11:45

Aram Saharyan (YSU)

Vacuum polarization around cosmic strings

Sravan Kumar (ICG, Portsmouth)

Finding origins of CMB anomalies in the inflationary quantum fluctuations

Lunch 13:00–15:30

Invited talks 15:30–19:00

Chair Viatcheslav Mukhanov

Dmitry Galtsov (MSU)

Hidden symmetries and integrability of Petrov I spacetimes

Rashid Sunyaev (SRI, MPI Astr.)

The Sky in X-rays: millions of supermassive black holes and one-third of all massive (10^{14} – 10^{15} solar masses) clusters of galaxies (filled by dark matter) in the observable Universe. SRG/eRosita results

Coffee Break 17:00–17:30

Dmitry Pogosian (Alberta U)

Galactic merger rates and spin parameters ab initio via the clustering of critical events

Mikhail Volkov (Tours U)

Black holes with electroweak hair

Thursday, 10 October, Social Program, Conference dinner

Friday, 11 October

Invited talks 10:00–13:30

Chair Vahe Gurzadyan

Andrei Linde (Stanford U)

From Starobinsky model to $SL(2, \mathbb{Z})$ cosmological attractors

Renata Kallosh (Stanford U)

$SL(2, \mathbb{Z})$ cosmology

Coffee Break 11:30–12:00

Andronikos Paliathanasis (Durban Technology U)

The Common Solution Space of General Relativity and Modern Cosmology

Elena Arbuzova (NSU)

High energy phenomena in modified gravity

Lunch 13:30–15:30

Contributed talks 15:30–18:30

Chair Alexander Belyaev

Marine Samsonyan (AANL, YSU)

Smearing of primordial gravitational waves

Ekaterina Pozdeeva (SINP MSU)

Possible extensions of Starobinsky model

Ashot Gevorkyan (Inf. I)

Quantum vacuum and about massless Bose particles with spin 1 within the framework of the $SU(2) \times U(1)$ gauge symmetry group

Coffee Break 16:45–17:15

Evgeny Davydov (JINR)

On the physical effects generated by gravitational shock waves

Alexei Golovnev (BUE)

Cosmological perturbations in modified teleparallel theories of gravity

Pavel Petrov (IBS CTPU–CGA)

On the strong coupling problem in K-inflation

Saturday, 12 October

Invited talks 10:00–13:30

Chair Dmitry Gorbunov

Andrei Barvinski (LPI)

Quantum origin of R^2 and Higgs inflationary Universe

Armen Allahverdyan (AANL)

Time arrow is influenced by the dark energy

Coffee Break 11:30–13:35

Sergei Sushkov (Kazan U)

Cosmological bounce in the theory of gravity with non-minimal derivative coupling

Alex Giacomini (U Austral de Chile)

Spontaneous symmetry breaking as a result of extra dimensions compactification

Aayush Sinha (Indian YNS)

Precise Solutions to Non-Linear Partial Differential Equations of Einstein Tensor and Ricci Flow

Closing 13:35