

Center for Mathematical and Applied Research

Cosmology Laboratory

Head of laboratory

Publications

Article

Cosmic voids and the kinetic analysis V. Hubble tension, the cosmological constant, and aperiodic filaments

V.G.Gurzadyan, V.M.Chechetkin, N.N.Fimin

Astronomy and Astrophysics 2026 A70

Article

Cosmic voids and the kinetic analysis: IV. Hubble tension and the cosmological constant

Gurzadyan V.G., Fimin N. N., Chechetkin V. M.

Astronomy and Astrophysics 2025 A252

Article

Messier 90 galactic halo rotation in the microwaves

V.G.Gurzadyan, De Paolis F., G.Yegoryan, A.Kashin, Qadir A., Tahir N., Jetzer Ph.

Astronomy and Astrophysics 2025 L2

Article

Kolmogorov analysis of JWST deep survey galaxies

V.G.Gurzadyan, A.A.Kocharyan, N.Galikyan

Astronomy and Astrophysics 2025 L21

Article

On the Earth's tidal perturbations.II. LARES 2 satellite

V.G.Gurzadyan, H.G.Khachatryan, S.Mirzoyan, A.Paolozzi, I. Ciufolini

European Physical Journal Plus 2025 512

Article

Vishap stelae as cult dedicated prehistoric monuments of Armenian Highlands: data analysis and interpretation

Vahe Gurzadyan, Arsen Bobokhyan

npj Heritage Science 2025 1-12

Article

Probing lambda-gravity with Bose-Einstein condensates

V. Gurzadyan, I. Fuentes, A. Belyaev, H. A. Fernandez-Melendez

Physical Review Research 2025 L042051

Article

Focus point on tensions in cosmology from early to late universe: part II: new directions in the light of observations from the most modern astronomical facilities

V.G.Gurzadyan, E. Di Valentino, S.Capozziello

European Physical Journal Plus 2025 1011

Article

Neural network analysis of S2-star dynamics: extended mass

V.G.Gurzadyan, N. Galikyan, Sh. Khlghatyan, A. A. Kocharyan

European Physical Journal Plus 2024 246

Article

S2-star dynamics probing the galaxy core cluster

Gurzadyan V.G., Kocharyan A.A., Khlghatyan Sh., Galikyan N.

European Physical Journal Plus 2024 821

Article

Smearing of primordial gravitational waves

V.G.Gurzadyan, A.A.Kocharyan, M.Samsonyan

European Physical Journal Plus 2024 317

Article

On the high accuracy to test dragging of inertial frames with the LARES 2 space experiment

Vahe Gurzadyan, Ciufolini Ignazio, Paris Claudio, Pavlis Erricos C., Ries John C., Matzner Richard,

Deka Darpanjeet, Ortore Emiliano, Kuzmicz-Cieslak Magdalena, Penrose Roger, Paolozzi Antonio,

Goncalves Juan Pablo Sellanes

European Physical Journal C 2024 998

Article

The LARES 2 satellite, general relativity and fundamental physics

Vahe Gurzadyan, Ignazio Ciufolini, Antonio Paolozzi, Erricos C. Pavlis, John C. Ries, Richard Matzner,

Claudio Paris, Emiliano Ortore, Roger Penrose

European Physical Journal C 2023 87

Article

Focus point on tensions in cosmology from early to late universe: the value of the Hubble constant and the question of dark energy

V.G.Gurzadyan, S.Capozziello

European Physical Journal Plus 2023 184

Article

Cosmic voids and the kinetic analysis. II. Link to Hubble tension

V.G.Gurzadyan, N.N.Fimin, V. M. Chechetkin

Astronomy and Astrophysics 2023 A95

Article

Cosmic voids and the kinetic analysis III. Hubble tension and structure formation in the late Universe

V.G. Gurzadyan, N. N. Fimin, V. M. Chechetkin

Astronomy and Astrophysics 2023 A161

Article

Neural network analysis of S-star dynamics: implications for modified gravity

V. G. Gurzadyan, A. A. Kocharyan, N. Galikyan, Sh. Khlghatyan

European Physical Journal Plus 2023 883

Article

First results of the LARES 2 space experiment to test the general theory of relativity

Vahe Gurzadyan, Ignazio Ciufolini, Claudio Paris, Erricos C. Pavlis, John Ries, Richard Matzner, Antonio Paolozzi, Emiliano Ortore, Giuseppe Bianco, Magdalena Kuzmicz-Cieslak, Roger Penrose
European Physical Journal Plus 2023 1054

Article

On the origin of cosmic web

Gurzadyan V.G., Chechetkin, Fimin

European Physical Journal Plus 2022 132

Article

The cosmological constant vs adiabatic invariance

V. G. Gurzadyan, A. A. Kocharyan, A. Stepanian, Sh. Khlghatyan

European Physical Journal Plus 2022 458

Article

Tidal disruption effects near black holes and Lambda-gravity

A.Stepanian, V.Gurzadyan, Sh.Khlghatyan

European Physical Journal Plus 2022 965

Article

Gravitational waves as waveguides

V. G. Gurzadyan, M. Samsonyan, A. A. Kocharyan

European Physical Journal Plus 2022 1133

Article

Cosmic voids and the kinetic analysis

V.G.Gurzadyan, V.M.Chechetkin, N.Fimin

Astronomy and Astrophysics 2022 A149

Article

Hubble tension and absolute constraints on the local Hubble parameter

V.G.Gurzadyan, A.Stepanian

Astronomy and Astrophysics 2021 A145

Article

Cosmic voids and induced hyperbolicity. III. Tracing redshift dependence

V.G.Gurzadyan, A.Kocharyan, M.Samsonyan, A.Stepanian

European Physical Journal Plus 2021 821

Article

Cosmological constant, information and gedanken experiments with black hole horizons

V.G.Gurzadyan, A.Stepanian

European Physical Journal Plus 2021 361

Article

Cosmic voids and induced hyperbolicity. II. Sensitivity to void/wall scales

V.G.Gurzadyan, M.Samsonyan, A.Kocharyan, A.Stepanian

European Physical Journal Plus 2021 350

Article

Focus point on modified gravity theories and cosmology

V.G.Gurzadyan, Capozziello

European Physical Journal Plus 2021 871

Article

Ultrahigh accuracy time synchronization technique operation on the Moon

V.G.Gurzadyan, A.Margarian

European Physical Journal Plus 2021 329

Article

Hubble tension vs two flows

V.G.Gurzadyan, A.Stepanian

European Physical Journal Plus 2021 235

Article

Black hole shadow to probe modified gravity

V.G.Gurzadyan, A.Stepanian, Sh.Khghatyan

European Physical Journal Plus 2021 127

Article

Cosmic voids and induced hyperbolicity

V.G.Gurzadyan, M. Samsonyan, A. A. Kocharyan, A. Stepanian

European Physical Journal Plus 2020 946

Article

Lense-Thirring precession and gravito-gyromagnetic ratio

V.G.Gurzadyan, A. Stepanian, Sh. Khghatyan

European Physical Journal C 2020 1011

Article

On the Lambda-evolution of galaxy clusters

V.G.Gurzadyan, A. A. Kocharyan, A. Stepanian

European Physical Journal C 2020 24

Article

Focus Point on Tests of General Relativity and Alternative Gravity Theories

V. Gurzadyan, I. Ciufolini, S. Capozziello

European Physical Journal Plus 2019 251

Article

An improved test of the general relativistic effect of frame-dragging using the LARES and LAGEOS satellites

V.G.Gurzadyan, Roger Penrose, Claudio Paris, Rolf Koenig, Richard Matzner, John Ries,

Giampiero Sindoni, Erricos C. Pavlis, Antonio Paolozzi, Ignazio Ciufolini
European Physical Journal C 2019 872

Article

Satellite Laser-Ranging as a Probe of Fundamental Physics

Vahe Gurzadyan, Rolf Koenig, John Ries, Giampiero Sindoni, Erricos C. Pavlis, Antonio Paolozzi, Ignazio Ciufolini, Richard Matzner
Scientific Reports 2019 15881

Article

Machine learning and Kolmogorov analysis to reveal gravitational lenses

V.G.Gurzadyan, S. S. Mirzoyan, H. Khachatryan, G. Yegorian
Monthly Notices of the Royal Astronomical Society 2019 L32

Article

H₀ tension: clue to common nature of dark sector?

V.G.Gurzadyan, A. Stepanian
European Physical Journal C 2019 568

Article

The cosmological constant derived via galaxy groups and clusters

V.G.Gurzadyan, A. Stepanian
European Physical Journal C 2019 169

Article

Cosmological constant as a fundamental constant

V.G.Gurzadyan, A. Stepanian
European Physical Journal Plus 2019 98

Article

On the common nature of dark matter and dark energy: Galaxy groups

V.G.Gurzadyan
European Physical Journal Plus 2019 14

Article

Rotating baryonic dark halos

V.G.Gurzadyan, Ph. Jetzer, G. Ingrosso, N. Tahir, S. Sargsyan, A. Amekhyan, A. Kashin, A. Qadir, A. A. Nucita, A. V. Gurzadyan, F. De Paolis
Astronomy and Astrophysics 2019 A87

Article

Messier 81's Planck view versus its halo mapping

A. Amekhyan, V. G. Gurzadyan, S. Sargsyan, A. L. Kashin, F. De Paolis, A. A. Nucita, G. Yegorian, A. Qadir, G. Ingrosso, Ph. Jetzer, D. Vetrugno
Astronomy and Astrophysics 2018 A131
