

## Center for Mathematical and Applied Research

Cosmology Laboratory

Head of laboratory

## 📖 Publications

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*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

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*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

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*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

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*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

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*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

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*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

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*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

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*Article*

**On the origin of cosmic web**

Gurzadyan V.G., Chechetkin, Fimin

European Physical Journal Plus 2022 132

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*Article*

**The cosmological constant vs adiabatic invariance**

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

European Physical Journal Plus 2022 458

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*Article*

**Tidal disruption effects near black holes and Lambda-gravity**

A. Stepanian, V. Gurzadyan, Sh. Khlgatyan

European Physical Journal Plus 2022 965

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*Article*

**Gravitational waves as waveguides**

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

European Physical Journal Plus 2022 1133

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*Article*

**Cosmic voids and the kinetic analysis**

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

Astronomy and Astrophysics 2022 A149

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*Article*

**Hubble tension and absolute constraints on the local Hubble parameter**

V.G.Gurzadyan, A.Stepanian

Astronomy and Astrophysics 2021 A145

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*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

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*Article*

**Cosmological constant, information and gedanken experiments with black hole horizons**

V.G.Gurzadyan, A.Stepanian

European Physical Journal Plus 2021 361

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*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

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*Article*

**Focus point on modified gravity theories and cosmology**

V.G.Gurzadyan, Capozziello

European Physical Journal Plus 2021 871

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*Article*

**Ultrahigh accuracy time synchronization technique operation on the Moon**

V.G.Gurzadyan, A.Margarian

European Physical Journal Plus 2021 329

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*Article*

**Hubble tension vs two flows**

V.G.Gurzadyan, A.Stepanian

European Physical Journal Plus 2021 235

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*Article*

**Black hole shadow to probe modified gravity**

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

European Physical Journal Plus 2021 127

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*Article*

**Cosmic voids and induced hyperbolicity**

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

European Physical Journal Plus 2020 946

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*Article*

**Lense-Thirring precession and gravito-gyromagnetic ratio**

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

European Physical Journal C 2020 1011

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*Article*

**On the Lambda-evolution of galaxy clusters**

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

European Physical Journal C 2020 24

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*Article*

**Focus Point on Tests of General Relativity and Alternative Gravity Theories**

V. Gurzadyan, I. Ciufolini, S. Capozziello

European Physical Journal Plus 2019 251

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*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

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*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

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*Article*

**Machine learning and Kolmogorov analysis to reveal gravitational lenses**

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**H<sub>0</sub> tension: clue to common nature of dark sector?**

V.G.Gurzadyan, A. Stepanian

European Physical Journal C 2019 568

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*Article*

**The cosmological constant derived via galaxy groups and clusters**

V.G.Gurzadyan, A. Stepanian

European Physical Journal C 2019 169

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*Article*

**Cosmological constant as a fundamental constant**

V.G.Gurzadyan, A. Stepanian

European Physical Journal Plus 2019 98

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*Article*

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

V.G.Gurzadyan

European Physical Journal Plus 2019 14

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*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

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