

Prof. Özgür Akarsu

Personal Information

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International Researcher IDs

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Education Information

Post Doctorate, Koc University, Faculty Of Science, Department Of Physics, Turkey 2010 - 2015

Doctorate, Ege University, Faculty Of Science, Astronomy and Space Sciences, Turkey 2005 - 2010

Postgraduate, Ege University, Faculty Of Science, Astronomy and Space Sciences, Turkey 2003 - 2005

Undergraduate, Ege University, Faculty Of Science, Astronomy and Space Sciences, Turkey 1998 - 2003

Research Areas

Physics, Astronomy and Astrophysics

Academic Titles / Tasks

Professor, Istanbul Technical University, Fen-Edebiyat, Fizik Mühendisliği, 2023 - Continues

Associate Professor, Istanbul Technical University, Fen-Edebiyat, Fizik Mühendisliği, 2015 - 2023

Researcher, The Abdus Salam International Centre for Theoretical Physics, High Energy, Cosmology and Astroparticle Physics, 2019 - 2019

Researcher, The Abdus Salam International Centre for Theoretical Physics, High Energy, Cosmology and Astroparticle Physics, 2016 - 2016

Researcher, Koc University, Faculty Of Science, Department Of Physics, 2010 - 2015

Researcher, The Abdus Salam International Centre for Theoretical Physics, High Energy, Cosmology and Astroparticle Physics, 2014 - 2014

Researcher, The Abdus Salam International Centre for Theoretical Physics, High Energy, Cosmology and Astroparticle Physics, 2012 - 2012

Researcher, University of Cambridge, Centre For Mathematical Sciences, Department Of Applied Mathematics And Theoretical Physics, 2008 - 2009

Courses

Cosmology II, Doctorate, 2021 - 2022, 2020 - 2021, 2018 - 2019

Cosmology I, Doctorate, 2021 - 2022, 2020 - 2021, 2018 - 2019

Advising Theses

- Akarsu Ö., A remedy for major cosmological tensions: Dark energy with an oscillating inertial mass density, Postgraduate, C.KIBRIS(Student), 2022
- Akarsu Ö., Testing Spatial Curvature and Anisotropic Expansion of the Universe on Top of the Lambda-CDM Model, Postgraduate, M.ÖZYİĞİT(Student), 2022
- Akarsu Ö., Rastall's theory of gravity extension of the standard Lambda-CDM model, Postgraduate, B.ÖZTÜRK(Student), 2021
- Turgut O. T., Akarsu Ö., Some new cosmological applications of the energy-momentum squared gravity, Doctorate, N.MERVE(Student), 2021

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Omnipotent dark energy: A phenomenological answer to the Hubble tension**
Adil S. A., Akarsu Ö., Di Valentino E., Nunes R. C., Özülker E., Sen A. A., Specogna E.
Physical Review D, vol.109, no.2, 2024 (SCI-Expanded)
- II. **T2- inflation: Sourced by energy-momentum squared gravity**
Mansoori S. A. H., Felegary F., Roshan M., Akarsu Ö., Sami M.
Physics of the Dark Universe, vol.42, 2023 (SCI-Expanded)
- III. **Weak field and slow motion limits in energy-momentum powered gravity**
Akarsu Ö., Çamlibel A. K., Katırcı N., Semiz İ., Uzun N. M.
Physics of the Dark Universe, vol.42, 2023 (SCI-Expanded)
- IV. **Model-independent reconstruction of the interacting dark energy kernel: Binned and Gaussian process**
Escamilla L. A., Akarsu Ö., Di Valentino E., Vazquez J. A.
Journal of Cosmology and Astroparticle Physics, vol.2023, no.11, 2023 (SCI-Expanded)
- V. **Relativistic binary systems in scale-independent energy-momentum squared gravity**
Akarsu Ö., Nazari E., Roshan M.
Monthly Notices of the Royal Astronomical Society, vol.523, no.4, pp.5452-5467, 2023 (SCI-Expanded)
- VI. **Relaxing cosmological tensions with a sign switching cosmological constant: Improved results with Planck, BAO, and Pantheon data**
Akarsu Ö., Kumar S., Özülker E., Vazquez J. A., Yadav A.
Physical Review D, vol.108, no.2, 2023 (SCI-Expanded)
- VII. **Inevitable manifestation of wiggles in the expansion of the late Universe**
Akarsu Ö., Colgáin E. Ó., Özülker E., Thakur S., Yin L.
Physical Review D, vol.107, no.12, 2023 (SCI-Expanded)
- VIII. **Cosmological models in scale-independent energy-momentum squared gravity**
Akarsu Ö., Uzun N. M.
Physics of the Dark Universe, vol.40, 2023 (SCI-Expanded)
- IX. **Testing spatial curvature and anisotropic expansion on top of the Λ CDM model**
Akarsu Ö., Di Valentino E., Kumar S., Özyigit M., Sharma S.
Physics of the Dark Universe, vol.39, 2023 (SCI-Expanded)
- X. **Cosmology intertwined: A review of the particle physics, astrophysics, and cosmology associated with the cosmological tensions and anomalies**
Abdalla E., Abellán G. F., Aboubrahim A., Agnello A., Akarsu Ö., Akrami Y., Alestas G., Aloni D., Amendola L., Anchordoqui L. A., et al.
JOURNAL OF HIGH ENERGY ASTROPHYSICS, vol.34, pp.49-211, 2022 (SCI-Expanded)
- XI. **Relaxing cosmological tensions with a sign switching cosmological constant**
Akarsu Ö., Kumar S., Özülker E., Alberto Vazquez J.
PHYSICAL REVIEW D, vol.104, no.12, 2021 (SCI-Expanded)
- XII. **Snowmass2021-Letter of interest cosmology intertwined IV: The age of the universe and its curvature**

- Di Valentino E., Anchordoqui L. A., Akarsu Ö., Ali-Haimoud Y., Amendola L., Arendse N., Asgari M., Ballardini M., Basilakos S., Battistelli E., et al.
ASTROPARTICLE PHYSICS, vol.131, 2021 (SCI-Expanded)
- XIII. **Snowmass2021-Letter of interest cosmology intertwined I: Perspectives for the next decade**
 Di Valentino E., Anchordoqui L. A., Akarsu Ö., Ali-Haimoud Y., Amendola L., Arendse N., Asgari M., Ballardini M., Basilakos S., Battistelli E., et al.
ASTROPARTICLE PHYSICS, vol.131, 2021 (SCI-Expanded)
- XIV. **Cosmology intertwined III: f sigma(8) and S-8**
 Di Valentino E., Anchordoqui L. A., Akarsu Ö., Ali-Haimoud Y., Amendola L., Arendse N., Asgari M., Ballardini M., Basilakos S., Battistelli E., et al.
ASTROPARTICLE PHYSICS, vol.131, 2021 (SCI-Expanded)
- XV. **Snowmass2021-Letter of interest cosmology intertwined II: The hubble constant tension**
 Di Valentino E., Anchordoqui L. A., Akarsu Ö., Ali-Haimoud Y., Amendola L., Arendse N., Asgari M., Ballardini M., Basilakos S., Battistelli E., et al.
ASTROPARTICLE PHYSICS, vol.131, 2021 (SCI-Expanded)
- XVI. **Simple-graduated dark energy and spatial curvature**
 Acquaviva G., Akarsu Ö., Katirci N., Vazquez J. A.
PHYSICAL REVIEW D, vol.104, no.2, 2021 (SCI-Expanded)
- XVII. **Screening anisotropy via energy-momentum squared gravity: Λ CDM model with hidden anisotropy**
 Akarsu Ö., Barrow J. D., Uzun N. M.
PHYSICAL REVIEW D, vol.102, no.12, 2020 (SCI-Expanded)
- XVIII. **Rastall gravity extension of the standard Lambda CDM model: theoretical features and observational constraints**
 Akarsu Ö., Katirci N., Kumar S., Nunes R. C., Öztürk B., Sharma S.
EUROPEAN PHYSICAL JOURNAL C, vol.80, no.11, 2020 (SCI-Expanded)
- XIX. **Graduated dark energy: Observational hints of a spontaneous sign switch in the cosmological constant**
 Akarsu Ö., Barrow J. D., Escamilla L. A., Alberto Vazquez J.
PHYSICAL REVIEW D, vol.101, no.6, 2020 (SCI-Expanded)
- XX. **Weak field limit of higher dimensional massive Brans-Dicke gravity: Observational constraints**
 Akarsu Ö., Chopovsky A., Shulga V., Yalçınkaya E., Zhuk A.
PHYSICAL REVIEW D, vol.101, no.2, 2020 (SCI-Expanded)
- XXI. **Anisotropic massive Brans-Dicke gravity extension of the standard Lambda CDM model**
 Akarsu Ö., Katirci N., Özdemir N., Vazquez J. A.
EUROPEAN PHYSICAL JOURNAL C, vol.80, no.1, 2020 (SCI-Expanded)
- XXII. **Screening Lambda in a new modified gravity model**
 Akarsu Ö., Barrow J. D., Board C. V. R., Uzun N. M., Vazquez J. A.
EUROPEAN PHYSICAL JOURNAL C, vol.79, no.10, 2019 (SCI-Expanded)
- XXIII. **Constraints on a Bianchi type I spacetime extension of the standard Lambda CDM model**
 Akarsu Ö., Kumar S., Sharma S., Tedesco L.
PHYSICAL REVIEW D, vol.100, no.2, 2019 (SCI-Expanded)
- XXIV. **Cosmological implications of scale-independent energy-momentum squared gravity: Pseudo nonminimal interactions in dark matter and relativistic relics**
 Akarsu Ö., Katirci N., KUMAR S., NUNES R. C., SAMI M.
PHYSICAL REVIEW D, vol.98, no.6, 2018 (SCI-Expanded)
- XXV. **Scalar perturbations in cosmological f (R) models: the cosmic screening approach**
 Akarsu Ö., BRILENKOV R., Eingorn M., SHULGA V., Zhuk A.
EUROPEAN PHYSICAL JOURNAL C, vol.78, no.8, 2018 (SCI-Expanded)
- XXVI. **Constraint on energy-momentum squared gravity from neutron stars and its cosmological implications**
 Akarsu Ö., Barrow J. D., Çıkıntıoğlu S., Ekşi K. Y., Katirci N.

- PHYSICAL REVIEW D, vol.97, no.12, 2018 (SCI-Expanded)
- XXVII. Black branes and black strings in the astrophysical and cosmological context**
 Akarsu Ö., CHOPOVSKY A., Zhuk A.
 PHYSICS LESSIONS B, vol.778, pp.190-196, 2018 (SCI-Expanded)
- XXVIII. Brane world models with bulk perfect fluid and broken 4D Poincare invariance**
 Akarsu Ö., CHOPOVSKY A., Eingorn M., FAKHR S. H., Zhuk A.
 PHYSICAL REVIEW D, vol.97, no.4, 2018 (SCI-Expanded)
- XXIX. Cosmic acceleration in a dust only universe via energy-momentum powered gravity**
 Akarsu Ö., Katirci N., KUMAR S.
 PHYSICAL REVIEW D, vol.97, no.2, 2018 (SCI-Expanded)
- XXX. Anisotropic inflation with a non-minimally coupled electromagnetic field to gravity**
 Adak M., Akarsu Ö., Dereli T., Sert O.
 JOURNAL OF COSMOLOGY AND ATSTROPATICLE PHYSICS, no.11, 2017 (SCI-Expanded)
- XXXI. Inflation and Late Time Acceleration Designed by Stueckelberg Massive Photon**
 Akarsu Ö., Arik M., Katirci N.
 FOUNDATIONS OF PHYSICS, vol.47, no.6, pp.769-796, 2017 (SCI-Expanded)
- XXXII. Broken scale invariance, alpha-attractors and vector impurity**
 Akarsu Ö., BORAN S., Kahya E. O., Özdemir N., Özkan M.
 EUROPEAN PHYSICAL JOURNAL C, vol.77, no.5, 2017 (SCI-Expanded)
- XXXIII. Accelerated expansion of the Universe in a higher dimensional modified gravity with Euler-Poincare terms**
 Akarsu O., Dereli T., Oflaz N.
 CLASSICAL AND QUANTUM GRAVITY, vol.32, no.21, 2015 (SCI-Expanded)
- XXXIV. Are dark energy models with variable EoS parameter w compatible with the late inhomogeneous Universe?**
 Akarsu O., BOUHMADI-LOPEZ M., BRILENKO V. M., BRILENKO R., Eingorn M., ZHUK A.
 JOURNAL OF COSMOLOGY AND ATSTROPATICLE PHYSICS, no.7, 2015 (SCI-Expanded)
- XXXV. A divergence-free parametrization for dynamical dark energy**
 Akarsu O., Dereli T., VAZQUEZ J. A.
 JOURNAL OF COSMOLOGY AND ATSTROPATICLE PHYSICS, no.6, 2015 (SCI-Expanded)
- XXXVI. General solution of a cosmological model induced from higher dimensions using a kinematical constraint**
 Akarsu O., Dereli T., Katirci N., Sheftel M. B.
 GENERAL RELATIVITY AND GRAVITATION, vol.47, no.5, 2015 (SCI-Expanded)
- XXXVII. Accelerated expansion of the universe a la the Stueckelberg mechanism**
 Akarsu O., Arik M., Katirci N., Kavuk M.
 JOURNAL OF COSMOLOGY AND ATSTROPATICLE PHYSICS, no.7, 2014 (SCI-Expanded)
- XXXVIII. Probing kinematics and fate of the Universe with linearly time-varying deceleration parameter**
 Akarsu O., Dereli T., KUMAR S., XU L.
 EUROPEAN PHYSICAL JOURNAL PLUS, vol.129, no.2, 2014 (SCI-Expanded)
- XXXIX. Accelerating anisotropic cosmologies in Brans-Dicke gravity coupled to a mass-varying vector field**
 Akarsu O., Dereli T., Oflaz N.
 CLASSICAL AND QUANTUM GRAVITY, vol.31, no.4, 2014 (SCI-Expanded)
- XL. Cosmology with hybrid expansion law: scalar field reconstruction of cosmic history and observational constraints**
 Akarsu O., KUMAR S., MYRZAKULOV R., SAMI M., XU L.
 JOURNAL OF COSMOLOGY AND ATSTROPATICLE PHYSICS, no.1, 2014 (SCI-Expanded)
- XLI. A four-dimensional lambda CDM-type cosmological model induced from higher dimensions using a kinematical constraint**
 Akarsu O., Dereli T.
 GENERAL RELATIVITY AND GRAVITATION, vol.45, no.6, pp.1211-1226, 2013 (SCI-Expanded)

- XLII. **The dynamical evolution of 3-space in a higher dimensional steady state universe**
 Akarsu O., Dereli T.
 GENERAL RELATIVITY AND GRAVITATION, vol.45, no.5, pp.959-986, 2013 (SCI-Expanded)
- XLIII. **Late time acceleration of the 3-space in a higher dimensional steady state universe in dilaton gravity**
 Akarsu O., Dereli T.
 JOURNAL OF COSMOLOGY AND ASTROPARTICLE PHYSICS, no.2, 2013 (SCI-Expanded)
- XLIV. **A Comparison of the LVDP and Lambda CDM Cosmological Models**
 Akarsu O., Dereli T.
 INTERNATIONAL JOURNAL OF THEORETICAL PHYSICS, vol.51, no.10, pp.2995-3000, 2012 (SCI-Expanded)
- XLV. **Bianchi type-II models in the presence of perfect fluid and anisotropic dark energy**
 KUMAR S., Akarsu O.
 EUROPEAN PHYSICAL JOURNAL PLUS, vol.127, no.6, 2012 (SCI-Expanded)
- XLVI. **Cosmological Models with Linearly Varying Deceleration Parameter**
 Akarsu O., Dereli T.
 INTERNATIONAL JOURNAL OF THEORETICAL PHYSICS, vol.51, no.2, pp.612-621, 2012 (SCI-Expanded)
- XLVII. **Some Anisotropic Universes in the Presence of Imperfect Fluid Coupling with Spatial Curvature**
 Akarsu O., Kilinc C. B.
 INTERNATIONAL JOURNAL OF THEORETICAL PHYSICS, vol.50, no.6, pp.1962-1977, 2011 (SCI-Expanded)
- XLVIII. **de Sitter expansion with anisotropic fluid in Bianchi type-I space-time**
 Akarsu O., Kilinc C. B.
 ASTROPHYSICS AND SPACE SCIENCE, vol.326, no.2, pp.315-322, 2010 (SCI-Expanded)
- XLIX. **Bianchi type III models with anisotropic dark energy**
 Akarsu O., Kilinc C. B.
 GENERAL RELATIVITY AND GRAVITATION, vol.42, no.4, pp.763-775, 2010 (SCI-Expanded)
- L. **LRS Bianchi type I models with anisotropic dark energy and constant deceleration parameter**
 Akarsu O., Kilinc C. B.
 GENERAL RELATIVITY AND GRAVITATION, vol.42, no.1, pp.119-140, 2010 (SCI-Expanded)

Articles Published in Other Journals

- I. **S₈ increases with effective redshift in Λ CDM cosmology**
 Adil S., Akarsu Ö., Malekjani M., Colgáin E., Pourojaghi S., Sen A., Sheikh-Jabbari M.
 Monthly Notices of the Royal Astronomical Society: Letters, vol.528, no.1, 2024 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Λ CDM cosmology with a quiescent anisotropy in a higher dimensional steady state universe**
 Akarsu Ö., Dereli T., Katirci N.
 A Life in Mathematical Physics: Conference in Honour of Tekin Dereli, DEREKI-FS 2021, Virtual, Online, 26 - 28 November 2021, vol.2191

Metrics

Publication: 53
 Citation (WoS): 1957
 Citation (Scopus): 2210
 H-Index (WoS): 20
 H-Index (Scopus): 20

Awards

Akarsu Ö., Üstün Başarılı Genç Bilim İnsanı (GEBİP) Ödülü, Türkiye Bilimler Akademisi (Tüba), December 2018
Akarsu Ö., Bilim Akademisi Genç Bilim İnsanları (BAGEP) Ödülü, Bilim Akademisi, April 2016