

# UFUK AYDEMİR

## Personal Information

Office Phone: [+90 312 210 4335](tel:+903122104335)

Email: [uaydemir@metu.edu.tr](mailto:uaydemir@metu.edu.tr)

Web: <https://www.ufukaydemir.com>

## International Researcher IDs

ScholarID: KgvKdcUAAAAJ

ORCID: 0000-0001-8294-8775

Publons / Web Of Science ResearcherID: GHZ-1377-2022

ScopusID: 34767843800

Yoksis Researcher ID: 397384

## Education Information

Doctorate, University of Massachusetts Amherst, College of Natural Sciences, Department of Physics, United States Of America 2007 - 2012

Postgraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, Turkey 2005 - 2007

Undergraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, Turkey 2002 - 2005

## Foreign Languages

Swedish, A1 Beginner

Chinese, A1 Beginner

English, C2 Mastery

## Dissertations

Doctorate, Topics in High Energy Physics Beyond the Standard Model, University of Massachusetts Amherst, College of Natural Sciences, Department of Physics, 2012

Postgraduate, Strong decays of the  $D_s J(2317)$  mesons using QCD sum rules, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2007

## Research Areas

Physics, High Energy Physics, Theoretical High Energy Physics Studies, Theoretical Neutrino Studies, Neutrino Oscillations, Relativity and Gravitation, Statistical physics, thermodynamic and nonlinear dynamic systems, Quantum Mechanics, Fields Theory and Relativity

## Academic Titles / Tasks

Researcher, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2022 - Continues

Researcher, Chinese Academy of Sciences, Institute of High Energy Physics (IHEP)- Beijing, Theoretical Physics, 2019 - 2022

Researcher, Huazhong University of Science and Technology, Department of Physics, 2017 - 2019

Researcher, Uppsala Universitet (Uppsala University), Department of Physics and Astronomy, 2013 - 2016

Researcher, Virginia Polytechnic Institute and State University, Department of Physics, 2012 - 2013

Research Assistant, University of Massachusetts Amherst, Department of Physics, 2007 - 2012

Research Assistant, Middle East Technical University, Faculty of Arts and Sciences, Department of Physics, 2005 - 2007

## Courses

General Relativity, Undergraduate, 2022 - 2023

Special Relativity, Undergraduate, 2022 - 2023

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **On thermodynamics of compact objects**  
Aydemir U., Ren J.  
CLASSICAL AND QUANTUM GRAVITY, vol.40, no.18, pp.1-24, 2023 (SCI-Expanded)
- II. **Dark sector production and baryogenesis from not quite black holes \***  
AYDEMİR U., Ren J.  
CHINESE PHYSICS C, vol.45, no.7, 2021 (SCI-Expanded)
- III. **Not quite black holes as dark matter**  
AYDEMİR U., Holdom B., Ren J.  
PHYSICAL REVIEW D, vol.102, no.2, 2020 (SCI-Expanded)
- IV. **Addressing the R-D(\*) anomalies with an S-1 leptoquark from SO(10) grand unification**  
AYDEMİR U., Mandal T., Mitra S.  
PHYSICAL REVIEW D, vol.101, no.1, 2020 (SCI-Expanded)
- V. **Clifford-based spectral action and renormalization group analysis of the gauge couplings**  
AYDEMİR U.  
EUROPEAN PHYSICAL JOURNAL C, vol.79, no.4, 2019 (SCI-Expanded)
- VI. **B-decay anomalies and scalar leptoquarks in unified Pati-Salam models from noncommutative geometry**  
AYDEMİR U., Minic D., Sun C., Takeuchi T.  
JOURNAL OF HIGH ENERGY PHYSICS, vol.2018, no.9, 2018 (SCI-Expanded)
- VII. **A Scale at 10 MeV, Gravitational Topological Vacuum, and Large Extra Dimensions**  
AYDEMİR U.  
UNIVERSE, vol.4, no.7, 2018 (SCI-Expanded)
- VIII. **LHC Probes of TeV-Scale Scalars in SO(10) Grand Unification**  
AYDEMİR U., Mandal T.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2017, 2017 (SCI-Expanded)
- IX. **The 750 GeV diphoton excess in unified SU(2)(L) x SU(2)(R) x SU(4) models from noncommutative geometry**  
Aydemir U., Minic D., Sun C., Takeuchi T.  
MODERN PHYSICS LETTERS A, vol.31, no.18, 2016 (SCI-Expanded)
- X. **SO(10) grand unification in light of recent LHC searches and colored scalars at the TeV-scale**  
AYDEMİR U.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS A, vol.31, no.8, 2016 (SCI-Expanded)
- XI. **Pati-Salam unification from noncommutative geometry and the TeV-scale W-R boson**  
AYDEMİR U., Minic D., Sun C., Takeuchi T.

- INTERNATIONAL JOURNAL OF MODERN PHYSICS A, vol.31, no.1, 2016 (SCI-Expanded)
- XII. **Higgs mass, superconnections, and the TeV-scale left-right symmetric model**  
AYDEMİR U., Minic D., Sun C., Takeuchi T.  
PHYSICAL REVIEW D, vol.91, no.4, 2015 (SCI-Expanded)
- XIII. **The Higgs mass and the emergence of new physics**  
AYDEMİR U., Minic D., Takeuchi T.  
PHYSICS LETTERS B, vol.724, no.4-5, pp.301-305, 2013 (SCI-Expanded)
- XIV. **Self-healing of unitarity in effective field theories and the onset of new physics**  
AYDEMİR U., Anber M. M., Donoghue J. F.  
PHYSICAL REVIEW D, vol.86, no.1, 2012 (SCI-Expanded)
- XV. **Dynamical four-form fields**  
AYDEMİR U., Grisa L., Sorbo L.  
PHYSICAL REVIEW D, vol.83, no.6, 2011 (SCI-Expanded)
- XVI. **Breaking diffeomorphism invariance and tests for the emergence of gravity**  
Anber M. M., AYDEMİR U., Donoghue J. F.  
PHYSICAL REVIEW D, vol.81, no.8, 2010 (SCI-Expanded)
- XVII. **Remarks on the minimal vectorial standard model**  
Anber M. M., AYDEMİR U., Donoghue J. F., Pais P.  
PHYSICAL REVIEW D, vol.80, no.1, 2009 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Axion dark matter with not quite black hole domination**  
AYDEMİR U.  
TURKISH JOURNAL OF PHYSICS, no.3, 2024 (ESCI)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Primordial black-hole mimicker in quadratic gravity as dark matter**  
Aydemir U.  
2019 Corfu Summer Institute "School and Workshops on Elementary Particle Physics and Gravity", CORFU 2019, Corfu, Greece, 31 August - 25 September 2019, vol.376
- II. **Gauge noninvariance as tests of emergent gauge symmetry**  
Donoghue J. F., Anber M. M., Aydemir U.  
5th Meeting on CPT and Lorentz Symmetry, CPT 2010, Bloomington, IN, United States Of America, 28 June - 02 July 2010, pp.113-117
- III. **Dynamical four-form fields**  
AYDEMİR U., Grisa L., Sorbo L.  
16th International Symposium on Particles, Strings and Cosmology (PASCOS 2010), Valencia, Spain, 19 - 23 July 2010, vol.259

## Scholarships

2232 - A International Fellowship for Outstanding Researchers, TUBITAK, 2022 - Continues  
President's International Fellowship Initiative (PIFI) Fellowship, Official Institutions of Foreign Countries, 2019 - 2021  
M.Sc. excellence fellowship, Young Scientist Training Program, TUBITAK, 2005 - 2007