

# Dr. Ali Övgün

Curriculum Vitae

## PERSONAL DETAILS

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*Now* FONDECYT Postdoc. Researcher at PUCV, CHILE.  
*Birthdate* March 22, 1988  
*Citizenship* Turkish Republic of Northern Cyprus, The Republic of Cyprus  
*Address* Oficina de Postdoctorados, Instituto de Física, Facultad de Ciencias, Pontificia Universidad Católica de Valparaíso (PUCV), Avda. Universidad 330, Curauma, Valparaíso, CHILE.  
*Mail* ali.ovgun@pucv.cl  
*Webpage* <http://aovgun.weebly.com>  
*Office Tel* +56-32-2274621

## WORK EXPERIENCE

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### Research visitor

April/May  
2018

*Prof. Leonard Susskind, Stanford Institute for Theoretical Physics, Stanford University, Stanford, California 94305, USA*

### Research visitor

April 2018

*Prof. Douglas Singleton, Physics Department, California State University, Fresno, CA 93740, USA*

### Research visitor

Jan/Feb 2018

*Prof. Robert B. Mann, Department of Physics and Astronomy, University of Waterloo, Waterloo, Ontario, N2L 3G1, CANADA*

### Research visitor

Jan/Feb 2018

*Perimeter Institute for Theoretical Physics, Waterloo, Ontario, N2L 2Y5, CANADA*

### Research visitor

10/2017

*Theoretical Physics -The European Organization for Nuclear Research-CERN TH, Geneva, SWITZERLAND*

### Postdoctoral Fellows

03/2017-  
03/2020

*Instituto de Física, Pontificia Universidad Católica de Valparaíso, CHILE*

### Part-Time Instructor

08/2016-  
06/2017

*Eastern Mediterranean University, N. CYPRUS*

PHYS111,PHYS101, FIZK101, FIZK103, FIZK104, FIZK201, FIZK202, FIZK503

**Lecturer**

09/2015-  
07/2016

*Eastern Mediterranean University, Full-time R.A, N. CYPRUS*

PHYS101, PHYS111, FIZK203 for undergraduate students studying in different departments.

**Research Assistant in Physics**

09/2011-  
09/2015

*Eastern Mediterranean University, Full-time, N. CYPRUS*

working alongside teachers to support learning activities, acting as a specialist assistant for particular subjects and leading classes under the direction of the teacher

**EDUCATION**

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**Ph.D. Physics**

02/2013-  
06/2016

*Eastern Mediterranean University, N. CYPRUS*

CGPA:3.71/4.00 Thesis title: Studies on Thin-shells and Thin-shell Wormholes  
Supervisor:Prof. Dr. Mustafa Halilsoy

**MSc. Physics**

09/2011-  
02/2013

*Eastern Mediterranean University, N. CYPRUS*

CGPA:3.43/4.00, Thesis title: Dark Matter Modification of f(R) or Wimps Miracle  
Supervisor: Prof. Dr. Mustafa Halilsoy

**NExT PhD school**

09/2010-  
06/2011

*University of Southampton, ENGLAND*

I took QFT, QFT2, Cosmology and GR courses and move to EMU, CYPRUS

**BSc. Physics**

09/2006-  
07/2010

*Izmir Institute of Technology, TURKEY*

CGPA: 3.28/4.00 With honors degree and graduated from undergrad as the 2nd. best student.  
Thesis title: Time in Quantum Tunneling.  
Supervisor: Prof. Dr. Durmus A. Demir

**College**

09/1999-  
07/2005

*19 Mayıs Turk Maarif Koleji, Girne, N. CYPRUS*

CGPA: 8.6/10 Majored in Science and Mathematics, with high honors

**SKILLS**

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*Languages*

Turkish (mother tongue)  
English (fluent)  
Spanish (beginner)  
Russian (beginner)  
Italian (beginner)

*Software*

MAPLE, L<sup>A</sup>T<sub>E</sub>X, PYTHON, LINUX, FORTRAN, MATHEMATICA

XVS, RNPLETAL, EDCRGTC, RICCI, GRTENSOR, CADABRA, MAXIMA, xACT.

## **HONORS AND AWARDS AND GRANTS**

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1. 2005-2010 Scholarship from TRNC Ministry of National Education
2. 2010 Scholarship for MSc EuroMasters in Physics from University of Southampton
3. 2010 Scholarship from AtoSim Erasmus Mundus Master of Science
4. 2010-2011 Scholarship from NExT PhD school, University of Southampton
5. 2011-2016 Research Assistantships, Eastern Mediterranean University, North Cyprus
6. 2014-2016 EMU IGSR Publication Awards
7. 2017-2020 Postdoctoral Fellowship, CONICYT-Chile through FONDECYT post-doctorado No. 3170035, Pontificia Universidad Catolica de Valparaiso, CHILE

## **JOURNALS REFEREED**

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1. International Journal of Theoretical Physics
2. Annals of physics
3. General Relativity and Gravitation
4. Gravitation and Cosmology
5. Canadian Journal of Physics
6. Universe

## **PUBLICATIONS (53 PUB.S=41 WOS+ 12 UNDER REVIEW)**

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2018

1. **Gravitational Lensing by Rotating Wormholes**, [Physical Review D](#), arXiv:1708.06725, Jointly with Kimet Jusufi.
2. **Effect of the cosmological constant on the deflection angle by a rotating cosmic string**, [Physical Review D](#) arXiv:1712.01771, Jointly with Kimet Jusufi.
3. **Formation of Wormholes by Dark Matter in the Galaxy Dragonfly 44**, [Canadian Journal of Physics](#) Jointly with Sayeedul Islam, Farook Rahaman and Mustafa Halilsoy.
4. **P-V criticality of a specific black hole in  $f(R)$  gravity coupled with Yang-Mills field**, [Advances in High Energy Physics](#) arXiv:1710.06795.

2017

1. **Light Deflection by a Rotating Global Monopole Spacetime**, [Physical Review D](#), arXiv:1702.05600, Jointly with Ayan Banerjee, Kimet Jusufi, and Marcus C. Werner.

2. **Effect of Lorentz Symmetry Breaking on the Deflection of Light in a Cosmic String Spacetime,**  
[Physical Review D](#), arXiv:1705.06197, Jointly with Kimet Jusufi and Izzet Sakalli.
3. **Relativistic Bose-Einstein condensates thin-shell wormholes,**  
[Physical Review D](#), arXiv:1710.05886, Jointly with M. G. Richarte, I. G. Salako, J. P. Morais Graca and H. Moradpour.
4. **Light Deflection by Charged Wormholes in Einstein-Maxwell-Dilaton Theory,**  
[Physical Review D](#), arXiv:1707.01416, Jointly with Kimet Jusufi and Ayan Banerjee.
5. **Inflation and Acceleration of the Universe by Nonlinear Magnetic Monopole Fields,**  
[The European Physical Journal C](#), arXiv:1604.01837.
6. **Charged Thin-shell Gravastars in Noncommutative Geometry,**  
[The European Physical Journal C](#), arXiv:1704.00603, Jointly with Ayan Banerjee and Kimet Jusufi.
7. **The Effect of the Gauss-Bonnet term to Hawking Radiation from arbitrary dimensional Black Brane,**  
[The European Physical Journal C](#), arXiv:1707.00169, Jointly with Xiao-Mei Kuang and Joel Saavedra.
8. **Hawking Radiation and Deflection of Light from Rindler Modified Schwarzschild Black Hole,**  
[EPL](#), arXiv:1702.04636, Jointly with Izzet Sakalli.
9. **Hawking radiation of scalar and vector particles from 5D Myers-Perry black holes,**  
[International Journal of Theoretical Physics](#), arXiv:1610.07069, Jointly with Kimet Jusufi.
10. **Eruptive Massive Vector Particles of 5-Dimensional Kerr Godel Space-time,**  
[International Journal of Theoretical Physics](#), arXiv:1705.00061, Jointly with Izzet Sakalli.
11. **The Effect of GUP to Massive Vector and Scalar Particles Tunneling From a Warped DGP Gravity BH,**  
[The European Physical Journal Plus](#), arXiv:1703.08073, Jointly with Kimet Jusufi.
12. **Stability of Effective Thin-shell Wormholes Under Lorentz Symmetry Breaking Supported by Dark Matter and Dark Energy,**  
[The European Physical Journal Plus](#), arXiv:1706.07656, Jointly with Kimet Jusufi.
13. **Anisotropic stellar models admitting conformal motion,**  
[The European Physical Journal Plus](#), arXiv:1702.06825, Jointly with A. Banerjee, S. Banerjee, and S. Hansraj.

14. **Quantum Tunneling and Quasinormal Modes in the Spacetime of Alcubierre Warp Drive,**  
[General Relativity and Gravitation](#), arXiv:1709.03923, Jointly with Kimet Jusufi and Izzet Sakalli.
15. **The Bekenstein-Hawking Corpuscular Cascading from the Backreacted Black Hole,**  
[Advances in High Energy Physics](#), arXiv:1609.07804.
16. **Particle Collision near 1+1- Dimensional Horava-Lifshitz Black Hole and Naked Singularity,**  
[Advances in High Energy Physics](#), arXiv:1504.03840, Jointly with Mustafa Halilsoy.
17. **Tunneling of Massive/Massless Bosons From the Apparent Horizon of FRW Universe,**  
[Advances in High Energy Physics](#), arXiv:1703.02372, Jointly with Kimet Jusufi and Gordana Apostolovska.
18. **Stable Dyonic Thin-shell Wormholes in String Theory,**  
[Advances in High Energy Physics](#), arXiv:1611.07501, Jointly with Kimet Jusufi.
19. **On a Particular Thin-shell Wormhole,**  
[Theoretical and Mathematical Physics](#), arXiv:1507.03949, Jointly with Izzet Sakalli.
20. **Particle Acceleration by Static Black Holes in a Model of  $f(R)$  Gravity,**  
[Canadian Journal of Physics](#), arXiv:1507.00633, Jointly with Mustafa Halilsoy.
21. **Thin-Shell Wormholes in Neo-Newtonian theory,**  
[Modern Physics Letters A](#), arXiv:1702.06823, Jointly with Ines Godonou Salako.
22. **Canonical Acoustic Thin-Shell Wormholes,**  
[Modern Physics Letters A](#), arXiv:1612.03749, Jointly with Kimet Jusufi.

## 2016

1. **Black hole radiation of massive spin-2 particles in (3+1) dimensions,**  
[The European Physical Journal Plus](#), arXiv:1605.02689, Jointly with Izzet Sakalli.
2. **Rotating Thin-Shell Wormhole,**  
[The European Physical Journal Plus](#), arXiv:1604.08477.
3. **GUP Assisted Hawking Radiation of Rotating Acoustic Black Holes,**  
[Astrophysics and Space Science](#), arXiv:1602.04304, Jointly with Izzet Sakalli and Kimet Jusufi.
4. **Tunneling of Massive Vector Particles From Rotating Charged Black Strings,**  
[Astrophysics and Space Science](#), arXiv:1512.08023, Jointly with Kimet Jusufi.
5. **Massive vector particles tunneling from noncommutative charged black holes and their GUP-corrected thermodynamics,**  
[The European Physical Journal Plus](#), arXiv:1512.05268, Jointly with Kimet Jusufi.

6. **Hawking Radiation of Mass Generating Particles from Dyonic Reissner Nordstrom Black Hole,**  
[Journal of Astrophysics and Astronomy](#), arXiv:1601.04040, Jointly with Izzet Sakalli.
7. **Existence of traversable wormholes in the spherical stellar systems,**  
[Astrophysics and Space Science](#), arXiv:1509.01237, Jointly with Mustafa Halilsoy.
8. **Entangled Particles Tunneling From a Schwarzschild Black Hole immersed in an Electromagnetic Universe with GUP,**  
[International Journal of Theoretical Physics](#), arXiv:1508.04100.
9. **Quantum Tunneling of Massive Spin-1 Particles From Non-stationary Metrics,**  
[General Relativity and Gravitation](#), arXiv:1507.01753, Jointly with Izzet Sakalli.

#### 2015

1. **Gravitinos Tunneling From Traversable Lorentzian Wormholes,**  
[Astrophysics and Space Science](#), arXiv:1506.00599, Jointly with Izzet Sakalli.
2. **Tunnelling of vector particles from Lorentzian wormholes in 3+1 dimensions,**  
[The European Physical Journal Plus](#), arXiv:1505.02093, Jointly with Izzet Sakalli.
3. **Hawking Radiation of Spin-1 Particles From Three Dimensional Rotating Hairy Black Hole,**  
[The Journal of Experimental and Theoretical Physics](#), arXiv:1503.01316, Jointly with Izzet Sakalli.
4. **Uninformed Hawking Radiation,**  
[EPL](#), arXiv:1409.5539, Jointly with Izzet Sakalli.

#### 2014

1. **Gravitational Lensing Effect on the Hawking Radiation of Dyonic Black Holes,**  
[International Journal of Geometric Methods in Modern Physics](#), arXiv:1405.5392, Jointly with Izzet Sakalli and Seyedeh Fatemeh Mirekhtari.
2. **Thin-shell wormholes from the regular Hayward black hole,**  
[The European Physical Journal C](#), arXiv:1312.6665, Jointly with Mustafa Halilsoy and S.Habib Mazharimousavi.

#### Preprints (with referees)

1. **Light Deflection by Quantum Improved Kerr Black Holes Pierced by a Cosmic String,**  
arXiv:1707.02824, Jointly with Kimet Jusufi.
2. **Quasinormal modes of Schwarzschild Black Hole Immersed In an Electromagnetic Universe,**  
arXiv:1708.08331, Jointly with Izzet Sakalli and Joel Saavedra.

3. **Falsifying cosmological models based on a non-linear electrodynamics**,  
arXiv:1709.09794, Jointly with Genly Leon, Juan Magana and Kimet Jusufi.
4. **Tunneling of Glashow-Weinberg-Salam model particles from Black Hole Solutions in Rastall Theory**,  
arXiv:1710.06264, Jointly with Wajiha Javed and Riasat Ali.
5. **Hawking radiation and propagation of massive charged scalar field on a three-dimensional Godel black hole**,  
arXiv:1711.01865. Jointly with Pablo A. Gonzalez, Joel Saavedra and Yerko Vasquez.
6. **Quasinormal Modes and Greybody Factors of Cloud of Strings Black Holes in  $2 + 1$  Dimensions**,  
arXiv:1801.02555, Jointly with Kimet Jusufi.
7. **Complexity growth rates for AdS black holes with dyonic/ nonlinear charge/ stringy hair/ topological defects**,  
arXiv:1801.09615, Jointly with Kimet Jusufi.
8. **Gravitational lensing by wormholes supported by electromagnetic, scalar, and quantum effects**,  
arXiv:1802.07680, Jointly with Kimet Jusufi, Izzet Sakalli and Ayan Banerjee.
9. **Hawking's universe as an evolving dark wormhole**,  
arXiv:1803.04256.
10. **Analytical Solutions in a Cosmic String Born-Infeld-dilaton Black Hole Geometry: Quasinormal Modes and Hawking Radiation**,  
arXiv: 1803.10583, Jointly with Kimet Jusufi and Izzet Sakalli.
11. **Inflation from a nonlinear magnetic monopole field nonminimally coupled to curvature**,  
arXiv: 1803.11358, Jointly with Giovanni Otalora, Joel Saavedra and Nelson Videla.
12. **Deflection of light by rotating regular black holes using the Gauss-Bonnet theorem**,  
arXiv: 1804.00643, Jointly with Jointly with Kimet Jusufi, Joel Saavedra, Pablo A. Gonzalez and Yerko Vasquez.

### Thesis

1. Ph.D Thesis Studies on Thin-shells and Thin-shell Wormholes. arXiv:1610.08118.
2. M.Sc Thesis Dark Matter: Modification of  $f(R)$  or Wimps Miracle. arXiv:1301.5371.

## **VOLUNTEER EXPERIENCES**

- Head of IYTE Physics Society, (2007-2010).

## **NEWS**

1. **DISCOVERY NEWS**: Wormhole Wonders: Hunting Down Spacetime Shortcuts
2. **SPACE.COM**: Chasing Wormholes: The Hunt for Tunnels in Space-Time

3. **TUBITAK BILIM VE TEKNIS DERGISI (Kasim 2015)**: Samanyolu Gokadasinda Solucan Deligi Olasiligi.
4. **EMU NEWS**: Important Research Findings from EMU Physics Department Academic Staff Member and PhD Student.
5. **EMU NEWS**: EMU Physics Program PhD Student Publishes an Article on Hawking Radiation.
6. **EMU NEWS**: EMU Physics Department Academic Staff Members Sakalli and Ovgun's Article Becomes the Most Read Publication in Cyprus.
7. **EMU NEWS**: Important Accomplishment From EMU Department of Physics Academician.
8. **EMU NEWS**: EMU Graduate Dr. Ali Ovgun To Work at CERN
9. **KIBRIS GAZETESI**: DAU Akademisyeninden Buyuk Basari.
10. **KIBRIS GAZETESI**: DAU Ogretim Gorevlisi Avrupa Fizik Dergisi'nde
11. **KIBRIS GAZETESI**: DAU Mezunu, CERN'de Calisacak
12. **DAU HABER**: Dr. Ali Ovgun CERN'de Calisacak

## **CONFERENCES & SUMMER SCHOOLS**

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- 2007-May, Eskisehir/Turkey, UFOK-III (3rd National Student Conference of Turkish Physical Society).
- 2007-July, Karlsruhe/Germany, Conference & Summer School- SUSY07.
- 2007-August, Bodrum/Turkey, ISCBPU-V (5th International Student Conference of Balkan Physical Union).
- 2008-July, ICTP Trieste/Italy, Summer School-COSMOLOGY 08.
- 2008-September, Akyaka-Mugla/Turkey, ISSCSMB08 International Summer School and Conference on Standard Model and Beyond (organized by METU, TUBITAK and ICTP).
- 2009-June, METU Ankara/Turkey, UFOK-5 (5th National Student Conference of Turkish Physical Society).
- 2009-July, TUBITAK Feza Gursev Theoretical Physics Institute Istanbul/Turkey, IARS II. National Summer Student School on High Energy Physics (YEF09).
- 2009-July, TUBITAK Feza Gursev Theoretical Physics Institute Istanbul/Turkey, Lectures on Neutrino Mass and Grand Unified Theories by Goran Senjanovic (ICTP).
- 2009-August, Ambleside- Lancaster/UK, Linear Collider Physics School 2009.
- 2009-August, Akyaka-Mugla/Turkey, ISSCSMB09 International Summer School and Conference on Standard Model and Beyond(organized by METU, TUBITAK and ICTP).



- 2012-April, METU NCC-N.Cyprus, Workshop on Recent Developments in High Energy Physics.
- 2013-April, Koc University, Istanbul/Turkey, 12th Quantization, Dualities and Integrable Systems.
- 2013-May, METU NCC-N.Cyprus, Workshop on Recent Developments in High Energy Physics.
- 2014-April, Koc University, Istanbul/Turkey, 13th Quantization, Dualities and Integrable Systems.
- 2015-May, EMU Famagusta,N.Cyprus, 14th Quantization, Dualities and Integrable Systems.
- 2015-July, FIAS Frankfurt/Germany, 2nd Karl Schwarzschild Meeting on Gravitational Physics.
- 2017-November, Mini-courses on Black hole Chemistry, Prof. Robert Mann, PUCV, Chile
- 2017-November, Gravity at UCEN 2017: Black holes and Cosmology. Universidad Central de Chile, Santiago.
- 2017-November, SCHOOL ON NUMERICAL METHODS IN GRAVITY AND HOLOGRAPHY by L.Lehrer, T.Andrade and S.Green. Universidad de Concepcion, Chile.
- 2017-November/December Sixth Meeting of CosmoConce 2017, Universidad del Bio-Bio, campus Concepcion, Chile.

## TALKS

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- Light Detection by Wormholes and Gibbons-Werner method, Department of Physics and Astronomy, University of Waterloo, Canada, 15 January 2018.
- Thin-shell Wormholes/Gravastars. Universidad del Bio-Bio, campus Concepcion, Chile. 2017-November/December. Sixth Meeting of CosmoConce 2017.
- Hidden gates in universe: Wormholes. Universidad Central de Chile, Santiago. November 2017, Gravity at UCEN 2017: Black holes and Cosmology,
- Thin-shell Wormholes and Gravastars, Universidad de Valparaiso (UV), Chile, November 2017, Seminarios Astrofisicos.
- Thin-shell Wormholes and Gravastars, Pontificia Universidad Catolica de Valparaiso (PUCV), Chile, September 2017, Seminario del grupo de Gravitacion, Cosmologia y Astrofisica.
- Particle Collision near 1+1 Dimensional Horava-Lifshitz Black Holes, FIAS Frankfurt, Germany July 2015, Workshop KSM2015.
- Particle Collision near 1+1 Dimensional Horava-Lifshitz Black Holes, EMU/N.Cyprus, May 2015, Workshop QDIS14.
- Thin-shell wormholes from the regular Hayward black hole, Koc University Istanbul/Turkey, April 2014, Workshop QDIS13.

- Thin-shell wormholes from the regular Hayward black hole, IYTE Izmir/Turkey, Jan 2014, Seminar.
- Thin-shell wormholes from the regular Hayward black hole, EMU/N.Cyprus, Dec 2013, Seminar.
- Dark Matter Modification of  $f(R)$  or Wimps Miracle, EMU/N.Cyprus, Jan 2013, Master Thesis Defense.
- The Mystery of Mass, Eskisehir/Turkey, May 2007, 3rd National Conference of Physics Students (UFOK-3).
- The Dark Side of the Cosmos, Izmir/Turkey, December 2008, IYTE Physics Society.
- String Theory, METU Ankara/Turkey, June 2009 , 5th National Conference of Physics Students (UFOK-5).

## **REFERENCES**

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1. **Durmus A. DEMIR Professor** Izmir Institute of Technology (IYTE), Department of Physics, TR35430, Urla, Izmir, Turkey. Tel: +90-232-750-7704, E-mails: demir@physics.iztech.edu.tr , ddemir@ictp.it
2. **Mustafa HALILSOY Professor** Department of Physics, EMU N. Cyprus, Tel: +90-392-6301314, E-mail: mustafa.halilsoy@emu.edu.tr
3. **Izzet SAKALLI Professor** Chair of the Department of Physics, EMU N. Cyprus, Tel: +90-392-6301314, E-mail: izzet.sakalli@emu.edu.tr
4. **Joel SAAVEDRA Professor** Vice-Rector of Research and Advanced Studies, PUCV, Chile Tel: +56 32 2273444, E-mail: joel.saavedra@pucv.cl