



Furkan Semih Dündar

Curriculum Vitae

Research Interests

Physics

- **Quantum Gravity.**
- **Shape Dynamics.**
- **Bohmian Field Theory.**

Mathematics

- **Differential Geometry.**
- **n -Scales.**

Work

2016–2018 **Research Assistant**, *Boğaziçi University.*

Education

2016–2018 **PhD. in Physics**, *Boğaziçi University.*

2012–2014 **MSc. in Physics**, *Middle East Technical University.*

2007–2012 **BS. in Physics**, *Bilkent University.*

PhD. Thesis

Title *Quantum Phenomena and Shape Dynamics*
Advisor Metin Arik and Levent Akant

Master Thesis

Title *The Firewall Paradox*
Advisor Bayram Tekin
Online <http://arxiv.org/abs/1409.0474>

Awards and Honors

- 2015–2018 TÜBİTAK (Ph.D.) Scholarship
- 2012–2014 TÜBİTAK (M.Sc.) Scholarship
- 2012 Bilkent University, High Honor Degree
- 2007–2012 Bilkent University, Full Scholarship
- 2007–2012 TÜBİTAK (Undergraduate) Scholarship

Referee for

- Modern Physics Letters A

Books

- Furkan Semih Dündar. *The Firewall Paradox: What is wrong with quantum gravity*. LAP LAMBERT Academic Publishing (December 20, 2016). ISBN: 978-3330021754

Publications

1. Furkan Semih Dündar and Metin Arık. *On the Non-Existence of Unbounded Discrete Space-Time*. Mathematical Advances in Pure and Applied Sciences. Accepted for publication.
2. Furkan Semih Dündar and Metin Arık. *Bohmian Mechanics made Machian*. The Online Journal of Science and Technology. Vol. 8, Issue 3, pp. 26–28, 2018.
3. Furkan Semih Dündar and Metin Arık. *Bohmian Field Theory on a Shape Dynamics Background and Unruh Effect*. Annals of Physics. Vol. 392, pp. 157–164, 2018. arXiv:1706.05890.
4. Furkan Semih Dündar, Soley Ersoy, Nuno T. Sá Pereira. *Bobillier formula for the elliptical harmonic motion*. An. St. Univ. Ovidius Constanta, Ser. Mat. Vol. 26. Issue 1, pp. 103–110, 2018
5. Furkan Semih Dündar. *The Theory of n -Scales*. AIP Conference Proceedings, vol. 1926, p. 020014, 2018. doi: 10.1063/1.5020463.
6. Furkan Semih Dündar and Barış Tamer Tonguç. *Quantum Shape Kinematics*. The Proceeding Book of International Science and Technology Conference 2016. Page 855. November 18, 2016. arXiv:1511.05840
7. Furkan Semih Dündar and Kamal Hajian. *Quantum Jump from Singularity to Outside of Black Hole*. JHEP 02 (2016) 175. arXiv:1511.03572

Preprints

1. Kahraman Esen Özen, Furkan Semih Dündar and Murat Tosun. *An Alternative Approach to Jerk in Motion Along a Space Curve with Applications*. Researchgate
2. Furkan Semih Dündar and Barış Tamer Tonguç. *Emergence of Spacetime in Quantum Shape Kinematics*. arXiv:1511.09197

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3. Furkan Semih Dündar. *The Firewall Paradox*. arXiv:1409.0474

Popular Publications

- Furkan Semih Dündar. *Riemann Hypothesis* (en: Riemann Hypothesis). Bilim ve Ütopya. October 2018. <http://www.bilimveutopya.com.tr/makale/riemann-hipotezi>
- Furkan Semih Dündar. *Şekil Dinamiğine Giriş* (en: Introduction to Shape Dynamics). Bilim Fili. June 2018. <https://bilimfili.com/sekil-dinamigine-giris/>
- Furkan Semih Dündar. *Mach İlkesi Nedir?* (en: What is Mach's Principle). BilimFili. June 2018. <https://bilimfili.com/mach-ilkesi-nedir/>
- Furkan Semih Dündar. *Stephen Hawking ve Kara Delikler* (en: Stephen Hawking and Black Holes). Bilim ve Ütopya. April 2018.
- Furkan Semih Dündar. *Mutlak Uzak* (en: Absolute Space). Bilim ve Teknik. May 2016.
- Furkan Semih Dündar. *Kütleçekim Dalgaları İlk Kez Gözlemlendi!* (en: Gravitational waves has first been observed). Bilim ve Teknik, March 2016.
- Furkan Semih Dündar. *İzafiyet kuramı ve kara delikler* (en: Relativity and Black Holes). SAÜ Aktüel 2015.
- Furkan Semih Dündar. *Karadeliğin Ateşten Seddi* (en: Black Hole's Wall of Fire). Bilim ve Teknik, February 2014.

Workshops and Conferences

- June 2018 **5th International Congress on Fundamental and Applied Sciences**, *International Balkan University*, Skopje, "Massive Scalar Field Theory on Discrete n -Scales".
- May 2018 **Mathematical Physics Days**, *Koç University*, İstanbul, "Gravitational Collapse of Thin Shell of Dust in Shape Dynamics".
- May 2018 **Recent Trends in String Theory and Related Topics**, *IPM*, Tehran, "Gravitational Collapse of Thin Shell of Dust in Shape Dynamics".
- Apr. 2018 **13. Ankara Matematik Günleri**, *TOBB ETÜ*, Ankara.
- Aug. 2017 **6th International Eurasian Conference on Mathematical Sciences and Applications**, Budapest, Hungary, "The Theory of n -Scales".
- Aug. 2017 **Astrofiziksel Diskler Yazokulu**, *Boğaziçi University*, İstanbul.
- July 2017 **Adım Physics Days VI**, *Balıkesir University*, Balıkesir, "An invitation to shape dynamics".
- May 2017 **Recent Trends in String Theory and Related Topics**, *IPM*, Tehran.
- July. 2016 **International Science and Technology Conference**, Wien.

- Dec. 2015 **International Conference on Quality in Higher Education**, *Sakarya University*, Sakarya.
- Sept. 2015 **International Science and Technology Conference**, St. Petersburg.
- Dec. 2014 **X Avogadro Meeting on Strings, Supergravity and Gauge Theories**, *Scuola Normale Superiore*, Pisa.
- April 2014 **13th Workshop on Quantization, Dualities and Integrable Systems**, *Koç University*, İstanbul.
- Sept. 2013 **Erdal İnönü Group Theory Summer School**, *Boğaziçi University and Bilim Akademisi*, İstanbul.
- July 2011 **Physics of Stars**, *ITAP*, Marmaris.

Past Teaching Duties

- 2018 Spring **Physics 442 Lab sessions**, *Boğaziçi University*, Turkey.
- 2018 Spring **Physics 101-121 Lab sessions**, *Boğaziçi University*, Turkey.
- 2017 Fall **Physics 101-121 Lab sessions**, *Boğaziçi University*, Turkey.
- 2017 Spring **Physics 202 Lab sessions**, *Boğaziçi University*, Turkey.
- 2016 Fall **Grader for Java Programming Course**, *Boğaziçi University*, Turkey.
- 2016 Fall **Physics 101-121 Lab sessions**, *Boğaziçi University*, Turkey.
- 2016 Spring **Physics 101-121 Lab sessions**, *Boğaziçi University*, Turkey.

Popular Science Activities

- 21–24 June **Science Festival**, *Sakarya*, Pozitif Bilimevi.
2016
- 2–5 Aug. **Astronomy and Physics Festival**, *Marmaris*, ITAP.
2011
- 7–10 Aug. **Astronomy and Physics Festival**, *Marmaris*, ITAP.
2011
- 27–30 Aug. **Astronomy and Physics Festival**, *Marmaris*, ITAP.
2011
- 2–5 Sept. **Astronomy and Physics Festival**, *Marmaris*, ITAP.
2011
- 19–20 Nov.. **Astronomy and Physics Festival**, *Marmaris*, ITAP.
2011
- 24–25 Mar. **Astronomy and Physics for Teachers**, *Marmaris*, ITAP.
2012

Languages

Turkish Advanced
English Advanced
Italian Elementary
Persian Elementary
Russian Elementary

Computer Skills

C, C++	Good	<i>General purpose</i>
Mathematica	Good	<i>Symbolic calculations</i>
Matlab	Good	<i>Numerical calculations</i>
Haskell	Intermediate	<i>Functional programming</i>
Python	Intermediate	<i>General purpose</i>
Emacs	Good	<i>Including modifications</i>
L ^A T _E X	Good	<i>Also good at PGF macros for drawing</i>