Özer Özdal

Contact Information

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Personal Information

•Date of birth
28/05/1990
•Place of birth
Izmir, Turkey

Languages

Native Turkish
Advanced English
French (A2 Level)

Software Skills

Monte Carlo Sampling
Statistical Modeling
Linear regression
Clustering
Quantitative Analysis
Data Visualization

Coursework

•Machine Learning
•Deep Learning Specialization
•SQL for Data Science
•Linear Algebra
•Multivariate Calculus
•Probability Theory
•Computational Physics
•Classical Mechanics
•Quantum Mechanics
•Statistical Mechanics

Tools

Python, C++
SQL, Fortran
CERN ROOT, LaTeX
Bash shell scripting
Mathematica, Matlab

Packages

Scikit-Learn,
NumPy, SciPy,
Pandas, Matplotlib,
Pytorch, TensorFlow

Research interests

Particle Physics Phenomenology, Beyond the Standard Model Phenomenology, Supersymmetry, Dark Matter, LHC Phenomenology/Collider Physics, Computing Tools for High-Energy Physics, Future High-Energy Physics Experiments, Grand Unified Theories (GUT), Electroweak Symmetry Breaking

Education

since 2016 **Ph.D. in Physics** — Concordia University
Phenomenology of new physics beyond the Standard Model: signals of dark matter and new gauge bosons at colliders. Lead to five scientific publications.

2016–2017 **Inter-University Transfer Student** — McGill University
Took two graduate courses:
Physics 610 Quantum Field Theory I given by Prof. Simon Caron-Huot
Physics 673 Quantum Field Theory II given by Prof. Alexander Maloney

2014–2016 **M.Sc. in Physics** — Izmir Institute of Technology
The Higgs boson and right-handed neutrinos in supersymmetric models. Lead to two scientific publications.

2009–2014 **B.Sc. in Physics (Ranked 3rd)** — Izmir Institute of Technology
Revisiting N-symmetric barrier tunneling in Quantum Mechanics

Experience

Since 2016 **Research Assistant (RA)** — Concordia University
Mariana Frank Research Group

2019-2020 **Visiting Ph.D. Student** — NExT Institute & University of Southampton
Supported by MITACS Globalink Research Award. Lead to two scientific publications.

2016-2020 **Teaching Assistant (TA)** — Concordia University
TAed for 8 physics courses. Graded assignments and wrote solutions, lead office hours and tutorial sessions:
PHYS 273: Energy and Environment (2020 Winter)
PHYS 284: Introduction to Astronomy (2019 Fall)
PHYS 204: Mechanics (Tutor, 2019 Summer, 2020 Summer)
PHYS 367: Modern Physics and Relativity (Tutor, 2019 Winter)
PHYS 245: Classical Mechanics (Tutor, 2018 Fall)
PHYS 224: Introductory Experimental Mechanics (Lab Assistant)
PHYS 252: Optics (2017 Winter, 2018 Winter)
PHYS 236: Numerical Analysis in Physics (2016 Fall, 2017 Fall)

2015–2016 **Research Assistant (RA)** — TUBITAK Project No: 114F461
Studied muon anomalous magnetic moment and yukawa quasi-unification in supersymmetric Models. Lead to two scientific publications.

2012–2012 **Internship** — Koç University, Mechanical Characterization Lab
Created vibration modeling in nanowire resonators with mechanical coupling

Publications

2020 **Leptophobic Z' bosons in the secluded $U(1)'$ model** arXiv:2005.08472

2020 **E6 motivated UMSSM confronts experimental data** J. High Energ. Phys. 2020, 123 (2020)

2019 **Natural Dark Matter and light bosons in an alternative left-right symmetric model** J. High Energ. Phys. 2020, 116 (2020)

2019 **Relaxing LHC constraints on the W_R mass** Phys. Rev. D 99, 035001

2018 **Exploring the supersymmetric U(1)$_{B-L}\times$ U(1)$_R$ model with dark matter, muon g−2, and Z' mass limits** Phys. Rev. D 97, 015012

2017 **Muon g−2 in an alternative quasi-Yukawa unification with a less fine-tuned seesaw mechanism** Phys. Rev. D 97, 055007

2016 **The Higgs boson and right-handed neutrinos in supersymmetric models** IZTECH Theses & Dissertations

2016 **Mass spectrum and Higgs profile in B−L symmetric SSM** Phys. Rev. D 93, 055024

Activities

2015 **Introduction to Supersymmetry Summer School** (2015, September 7-11) Boğaziçi University

2015 **METU HEP Days** (2015, February 12-14) METU

2014 **Cosmology and Astroparticle Physics Summer School** (2014, September 1-12) Boğaziçi University

2014 **Differential Geometry and Topological Methods in Physics Summer School** Boğaziçi University

2014 **Computational Techniques for Physicists and Astronomers Summer School** Boğaziçi University

2014 **Winter School on Computer Applications in Accelerator and Particle Physics** Gaziosmanpaşa University

2013 **Physics for Astronomers** (2013, September 2-6) Boğaziçi University

2013 **Cosmology Summer School** (2013, August 19-30) Boğaziçi University

2010 **Istanbul University 27th International Physics Congress** Istanbul University

Presentations

2019 **University of Southampton** (Oral Presentation) (2019, November 26)
Title: Relaxing LHC constraints on the W' mass, and natural Dark Matter — University of Southampton

2019 **NExT Meeting at Sussex** (Oral Presentation) (2019, November 20)
Title: W' searches at the LHC — University of Sussex

2019 **Higgs Couplings Workshop, Oxford, UK** (Oral Presentation) (September 30 - October 4)
Title: Mass spectrum and Higgs profile in B-L symmetric SSM — Higgs Couplings 2019

2019 **XIth International Symposium: Quantum Theory and Symmetries (QTS)**
Title: Relaxing LHC constraints on the W_R mass — QTS 2019

2018 **Phenomenology Symposium, Pittsburgh, USA** (Oral Presentation) (2018, 7-9 May)
Title: Naturalness and dark matter in supersymmetric $U(1)_{B-L} \times U(1)_R$ model — Pheno 2018

2018 **Winter Nuclear and Particle Physics Conference** (Oral Presentation) (2018, 15-18 February)
Title: Exploring the supersymmetric $U(1)_{B-L} \times U(1)_R$ model — WNPPC 2018

2015 **First Joint METU-IPM Conference on LHC Physics** (Poster) (September 29–October 3)
Title: Higgs Anomalies in SUSY B-L Model — ICTP-ECAR

2014 **Turkish Physical Society 31th International Physics Congress** (Poster) (July 21-24)
Title: Revisiting N-symmetric barrier tunneling in Quantum Mechanics — TFD-31

2014 **Izmir Solid State Physics Meeting** (Poster) (2014, April 11)
Title: Revisiting N-symmetric barrier tunneling in Quantum Mechanics — IZTECH

On-going Studies

1) **Correlating W' and Z' mass limits in general extensions of the Standard Model**
Collaboration with Prof. Benjamin Fuks, Prof. Stefano Moretti, Prof. Mariana Frank and Prof. Gennaro Corcella

Awards

2019 **Mitacs Globalink Research Award** — Mitacs

2016 **Concordia International Tuition Award of Excellence** — Concordia University

2014 **B.Sc. in Physics 3rd Ranked Award** — Izmir Institute of Technology

References

1) **Prof. Mariana Frank**
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2) **Prof. Benjamin Fuks**
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3) **Prof. Stefano Moretti**
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4) **Prof. Poulose Poulose**
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5) **Assoc. Prof. Cem Salih Ün**
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