



Mahdieh Ebrahimi

Physicist

📍 Tehran, Iran
@ evrusebr@gmail.com
🌐 eurusebr

Interests

Quantum Mechanics, Statistical Mechanics, Many-Body Complex Systems, Stochastic Processes.

Skills

Persian language (Native)

English language

Spanish (Basic)

Python

C++

Shell Script

L^AT_EX

Mathematica

Fortran

R

git

Education

- (2022-Now) PhD in Solid State Physics
(Technische Universität Darmstadt, Institut für Angewandte Physik), Germany
- (2016-2018/12) M.Sc in Solid State Physics
Department of Physics, Shahid Beheshti University, Tehran, Iran
GPA: 16/20
Thesis: Symmetry Breaking in a Spin Network with Triple Coupling Hamiltonian(Excellent Mark).
- (2010-2014/07) B.Sc. in Applied Mathematics
Department of mathematics, Alzahra University, Tehran, Iran
GPA: 13.99/20

Professional experience

- 2022- Now Finding the universality class of spreading a disease, using Levy random walk on a cubic lattice
in collaboration with Dr.M. Feshanjerdi, Tehran
- 2020- Now Percolation on the network of Cosmic Microwave Background (CMB) data
in collaboration with Dr. M.S. Movahed, SBU, Tehran
- 2020 Simulating the spreading of a disease, using random walk on a cubic lattice (PhysRevE)
in collaboration with Dr.M.Feshanjerdi and Dr. Saberi, UT, Tehran
- 2020 Statistical features of the 2D cross section of the 3D Ising model
Project of the stochastic processes course with Dr. Saberi, UT, Tehran
- 2018-2020 Symmetry Breaking in a Spin Network with Triple Coupling Hamiltonian(My Thesis)
Under Supervision of Prof. G.R. Jafari, SBU, Tehran
- 2018 Exploring the magnetic features of an impure cubic lattice
Project of the Computational Physics course with Dr. M.S. Movahed, SBU, Tehran

Publications

- Mohadeseh Feshanjerdi, Amir Ali Masoudi, Peter Grassberger, Mahdieh Ebrahimi, "Aftermath Epidemics: Percolation on the Sites Visited by Generalized Random Walks(2023)", arXiv preprint [arXiv:2023.06117](https://arxiv.org/abs/2023.06117).
- A Kargaran, M Ebrahimi, M Riazi, A Hosseiny, GR Jafari, "Quartic Balance Theory: Global Minimum with Imbalanced Triangles(2020)", [Phys. Rev. E 012310](https://arxiv.org/abs/2001.01719) & arXiv preprint [arXiv:2001.01719](https://arxiv.org/abs/2001.01719).

Some Attended Workshops & Conferences

- Online, PCS IBS conference series (Flatbands: symmetries, disorder, interactions and thermalization)
August 16 - 20, 2021
- Online, PCS International Workshop Quantum Many-Body Dynamics: Thermalization and its Violations
May 24 - 28, 2021
Watched the Videos on Youtube
- Online, ICTP The Hitchhiker's Guide to Condensed Matter and Statistical Physics: Topological Phenomena in Condensed Matter
06 May 2021 to 03 June 2021
- Online, USA NERCCS 2021: Fourth Northeast Regional Conference on Complex Systems
March 31-April 2, 2021
- Online, ICTP Spring College on the Physics of Complex Systems
(Passed Introduction to Mathematical Economics" with grade very good (A))
22 Feb - 19 Mar 2021



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- Online, Iran 11th Annual Statistical Physics Conference on Condensed Matter Physics and Complex Systems (Poster Presentation)
2021/1/20 - 2021/1/21
- Online, ICTP The Hitchhiker's Guide to Condensed Matter and Statistical Physics: Machine Learning for Condensed Matter
2021/1/13 - 2021/2/3
- Tehran, Iran Workshops on Data modeling and cosmological software
2018/5/16
- Tehran, Iran Tehran School on Theory and Applications of Complex Networks
2018/8/25-29
- Zanjan, Iran 25th Annual IASBS Meeting on Condensed Matter Physics & School on Complex Systems (Poster Presentation)
2019/6/13-14
- Zanjan, Iran 24th Annual IASBS Meeting on Condensed Matter Physics & School on Complex Systems
2018/6/20 - 2018/6/22
- Tehran, Iran IPM Elementary Data Science Summer School
2018/6/30 - 2018/7/5

Academic Activities

- Tehran, Iran Second Workshop on Two Days with Particle Physics 2018/12/12 - 13
Member of Organizing Committee

Additional Works

- Online, Iran Guest Writer at a Scientific Outreach Websites ([Wiki-Goonia](#))
2021
- Online, Iran Guest Writer at a Scientific Outreach Websites ([Sitpor](#))
2019
- Tehran, Iran Vice-chair of Fundamental Physics Students Association
Shahid Beheshti University
2018 - 2019
- Tehran, Iran Guest Writer at The University Mathematics Magazine: " $\sqrt{2}$ "
Alzahra University
2011 - 2014

Awards and Honors

- Tehran, Iran Honorable Member at the 4th Academic Festival of Harkat in Mathematics
Alzahra University
2013/05/12

Selected Courses

- | | | |
|------|---------------------------------------|-----------------|
| 2020 | Field Theory 1 (Audited) | Dr. H.Ebrahim |
| 2020 | Stochastic Processes (Audited) | Dr. A.A.Saberi |
| 2019 | Critical Phenomena (Audited) | Dr. M.S.Movahed |
| 2019 | Machine Learning in Physics (Audited) | Dr. S.Raeisi |
| 2019 | Topology (Audited) | Dr. Shojaei |
| 2018 | Computational Physics | Dr. M.S.Movahed |
| 2015 | Graph Theory | |



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Teaching Experiences

- Teaching Assistant, Virtual workshop on statistical analysis of cosmic fields at Shahid Beheshti University (2021), Dr. M.S. Movahed.
- Teaching Assistant, Mathematical Methods for Physics II at Shahid Beheshti University (2021), Dr. N.khosravi.
- Teaching Assistant, Mathematical Methods for Physics I at Shahid Beheshti University (2020), Dr. N.khosravi.
- Teaching Assistant, Classical Mechanics II at Shahid Beheshti University (2019), Dr. N.khosravi.
- Teaching Assistant, Computational Physics at Shahid Beheshti University (2019), Dr. A.Sadeghi.
- Teaching Assistant, Classical Mechanics I at Shahid Beheshti University (2019), Dr. N.khosravi.

Hobbies

- Reading Novels
- Walking
- Movies
- Learning Languages
- coding

References

1. Prof. G.R. Jafari (My M.Sc. Supervisor)

- 📍 Shahid Beheshti University, Tehran, Iran
- ✉ gjafari@gmail.com (Preferred Email), g_jafari@sbu.ac.ir
- 🌐 <http://facultymembers.sbu.ac.ir/jafari/>
- Professor of Physics, SBU
- Head of Center for Complex Networks Social Data Science

2. Dr. M.S. Movahed

- 📍 Shahid Beheshti University, Tehran, Iran
- ✉ movahedsadegh@yahoo.com (Preferred Email), s.movahed@sbu.ac.ir
- 🌐 <http://facultymembers.sbu.ac.ir/movahed/>
- Associate Professor of Physics, SBU
- Resident researcher, School of Physics, IPM