

I am currently a researcher at [EBRI](#), [Bioinformatics](#) specializing in the analysis of high-dimensional data including bulk and single-cell RNA Seq data associated with neurodegenerative diseases, particularly focusing on Parkinson's disease, and Progressive Supranuclear Palsy as well as cancer. My research is dedicated to harnessing the power of Artificial Intelligence and statistical methods for the diagnosis and deeper understanding the heterogeneous nature of individuals affected by neurodegenerative and cancer diseases.

EDUCATION

- Master** **High Performance Computing**, Thesis: [Leveraging Multi-Omics and Clinical Datasets of Parkinson's Disease with Machine Learning](#), ICTP and SISSA, Trieste, Italy
2021-2024
- Ph.D.** **Theoretical High Energy Physics**, Physics Dep., Boğaziçi University, Istanbul, Turkey, and STEP program, International Center for Theoretical Physics, Trieste, Italy
2015-2022
Thesis: [Topics on String Cosmology and Supergravity](#)
Advisers: Dieter Van den Bleeken & Fernando Quevedo
- Diploma** **Theoretical High Energy Physics**, International Center for Theoretical Physics, Trieste, Italy
2013-2014
Thesis: [Instantons and Monopoles](#)
Advisers: K. Narain & George Thompson
- M.Sc.** **Theoretical Particle Physics**, Physics Department, Alzahra University, Tehran, Iran
2011-2013
Thesis: Review on AdS/QCD
Advisers: A. Shafiekhani & M. M. Sheikh-Jabbari
- B.Sc.** **Atomic Physics**, Physics Department, Semnan University, Semnan, Iran.
2007-2011

Training and Scientific Visit

- Training at CINECA** **High Performance Bioinformatics**, Trained in high-performance computing (HPC) systems, RNA-seq pipeline development, and Snakemake for scalable and automated bioinformatics workflows, [more details](#).
4.12.2024-6.12.2024
- Scientific Visitor** **Scuola Normale Superiore di Pisa**, Bioinformatics Lab, Collaboration with [Francesco Raimondi](#).
4.11.2024-22.11.2024
- Training** **Re-Trainme Initiative**, [Post-degree training in Biomedical Computing](#), CINECA, COMBINE Group, University of Catania, Concept Lab, Istituto Italiano di Tecnologia, Laboratorio di Tecnologia Medica, Istituto Ortopedico Rizzoli
2023 Sep-Dec

AWARDS & HONORS

- International Centre for Theoretical Physics** Visiting Fellowship *program for Training and Research in Italian Laboratories (TRIL)*.
Jan.-Oct. 2021
- Perimeter Institute, Canada** *Visiting Graduate Fellow*, up to 12 months visit, canceled due to COVID-19.
2020
- International Centre for Theoretical Physics** Visiting Fellowship *Sandwich Training Educational Program (STEP)*.
Aug. 2018 - Dec. 2020
- TUBITAK** Scientific and Technological Research Council of Turkey Research Grant.
2015-2017
- ICTP** Visiting Fellowship in HECAP section.
2014-2015
- ICTP** Postgraduate Diploma Program Fellowship
2013-2014
- Semnan University** Recognition Award, Ranked 1st student, Physics Department, Exceptional Talents Organization of Semnan University.
2008

COMPUTING

- **Linux, Bash, C, C++, Fortran, R, Awk, Git, OpenMP, MPI parallelism.**
- **Python:** NumPy, Matplotlib, Pandas, Dask, Scikit-Learn, Yt-toolkit, Scipy.

LANGUAGE

- **Native:** Persian, **Fluent C1:** English, **Intermediate B1:** Italian
- **Elementary A2:** French, Turkish, Arabic

SELECTED TALKS

- 2022 *Topics on String Cosmology and Supergravity*
PhD defence presentation, [slides](#).
- 2020 *Oscillon Formation*
GRCHOMBO Code Collaboration meeting, King College London University via zoom
- 2018 *3D gravity and supergravity*
Physics Department, Bogazici University
- 2017 *A new Ising-type model from 2d $N = (2, 2)$ supersymmetric gauge theory*, [abstract](#)
Statistical Physics Day, Annual Conference, Izmir, Turkey
- Sep. 2016 *Comparison between one-loop supergravity free energy and ABJM theory result*, [slide](#)
hepht Journal club, Physics Department, Bogazici University
- Oct. 2016 *Asymptotic dynamics of three dimensional gravity*, [slide](#)
hepht Journal club, Physics Department, Bogazici University
- 2015 *Instantons and Monopoles*
hepht Journal club, Physics Department, Bogazici University

SELECTED PARTICIPATIONS

- 26 Nov. 2024 *Neuroscience inspired Next Generation Artificial Intelligence*
Sala Convegni , Consiglio Nazionale delle Ricerche (CNR), Italy
- Jul. 2020 *Summer School on Parallel Computing*
Online event, CINECA, Italy
- Mar. 2020 *GRChombo school and workshop*
Online event, University of Oxford, UK
- Dec 2019 *GRChombo workshop*
DAMTP, Centre for Mathematical Sciences, Cambridge, UK
- Fall 2018 *SISSA Basic PhD courses, Differential Geometry & Supersymmetry*
SISSA, Trieste, Italy
- 2017 *Doctoral School Brussels-Paris-Amsterdam-Geneva*
Henri Poincare Institute, Paris, France
- 2017 *Conference on Recent Trends in String Theory and Related Topics*
IPM, Tehran, Iran
- 2017 *Spring school on Superstring Theory and Related Topics*
ICTP, Trieste, Italy
- 2017 *Winter school on Strings and Fields*
CERN, Geneva, Switzerland
- Aug. 2016 *Workshop and school on Quantum Aspects of Black Holes*
Yerevan State University, Yerevan, Armenia

EXPERIENCE

Volunteering

- ICTP-PWF** [Physics Without Frontier Afghanistan](#), Co-organising Afghan Physics Students Conference, 10-11 Sep. 2024.
- Rai Radio 3** I was interviewed about my research and how can we help girls in Afghanistan [Rossella e la scienza: dalla parte delle ragazze](#).
20 Jan. 2023
- Science in Exile TriesteNext** I was a panelist to talk about protracted situation of displacement scientist for Afghanistan organised by TWAS world academy of science [Science in Exile initiative](#).
28 July 2021
- Science Festival TriesteNext** I was an advocate for ICTP and its mission, and High Energy physics for Public attendees at ICTP booth for [Science Festival TriesteNext 2020](#).
25-27 Sep. 2020
- ESOF 2020** I was an advocate for ICTP and its mission, and High Energy physics for Public attendees at ICTP booth in [EuroScience Open Forum](#) which took place in Trieste as 2020 European City of Science.
2-6 Sep. 2020
- ICTP-PWF** I co-organized and taught at the ICTP Physics Without Frontiers event in Afghanistan, held at Kabul University's Physics department. I delivered lessons on the basics of Lie groups and Lie Algebra. Despite the risks involved UNESCO had warned against it due to a recent attack on their camp, we stood firm in our decision and successfully carried out the event.
21-24 Apr. 2019
- Online physics** I am the admin of the [Online Physics website](#) which is dedicated to collect and organise e-lecture notes in physics.
2018-present

TEACHING

- Introduction to Lie groups and Algebra** School on Theoretical and Experimental Concepts in High Energy Physics, see [my note](#).
Kabul University
Apr. 2019
- Classical Mechanics, Electricity, and Magnetism** Teacher Assistance for undergraduate students
Alzahra University
Fall 2014

General Interest

- Football** I was an active member of [SISSA female football](#) team.
- Ping Pong** I was active ping pong player and I was one of the organiser of [ICTP Summer Table Tennis Tournament 2019](#). Here is the [code](#) where we have developed to generate the rounds of a tournament, given the number of participants.
- Painting** I engage in sporadic artistic pursuits, exploring diverse styles such as drawing and abstract art using various tools like pencils, oil, acrylic, watercolors, and styluses. Additionally, I am intrigued by the intersections of art with both science and philosophy. See some of [my recent work](#).
- Philosophy** I have developed a deep interest in philosophy. Apart from Physics I have been also admitted to the school of logic and philosophy, Imam Sadiq University in Tehran, Iran, 2007.

PUBLICATIONS

Books

- [1] (preprint), Z. Nazari, C. Stermann-Lücke, [Python Handbook](#).

Articles

- [2] Tomas Andrade, Llibert Salo, Josu Aurrekoetxea, et al. 2023 *GRChombo: Numerical relativity simulator*, Published in *Astrophysics Source Code Library*
- [3] Tomas Andrade, et al. 2021 *An adaptable numerical relativity code for fundamental physics*, Published in *J.Open Source Softw.* 6 (2021) 68, 3703
- [4] Z. Nazari, M. Cicoli & K. Clough, *Oscillon Collapse to Black Holes*, Published in: *JCAP* 05 (2021) 027
- [5] N. S. Deger, Z. Nazari, O. Sarioglu, *Supersymmetric solutions of $N=(1,1)$ general massive supergravity*, Published in: *Phys.Rev.D* 97 (2018) 10, 106022
- [6] Sh. Jafarzade, Z. Nazari, *A New Integrable Ising-type Model from 2d $N=(2,2)$ Dualities*, arXiv:1709.00070

REFEREES

- **Ivan Arisi**: EBRI (European Brain Research Institute Rita Levi-Montalcini Foundation), Rome, Italy i.arisi@ebri.it
- **Ivan Girotto**: ICTP (International Center for Theoretical Physics), Trieste, Italy igirotto@ictp.it
- **Fernando Quevedo**: University of Cambridge, DAMTP, Cambridge, UK fq201@damtp.cam.ac.uk
- **Dieter Van den Bleeken**: Bogazici University, Physics Department, and KU Leuven, Department of Physics and Astronomy, dieter.van@boun.edu.tr