MATTIA RADICE

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Date of birth: 07/04/1990 | Place of birth: Putignano (BA), Italy
Date: 07/02/2025

EDUCATION

Ph. D. | *Physics*   19/02/2021
University of Insubria   Como, Italy

- Thesis title: *Non-homogeneous random walks: from the transport properties to the statistics of occupation times*

Master Degree | *Physics*   04/10/2017
University of Insubria   Como, Italy

- Thesis title: *Random walk: problemi di primo passaggio nel caso di trasporto anomalo (Random walk: first passage problems in the case of anomalous transport)*
- Final grade: 110/110 *cum laude*

Bachelor Degree | *Physics*   19/02/2015
University of Insubria   Como, Italy

- Thesis title: *Trasporto anomalo e voli di Lévy (Anomalous transport and Lévy flights)*
- Final grade: 110/110

SUMMER SCHOOLS

Bangalore school on statistical physics X   Jun. 2019
International Centre for Theoretical Sciences   Bangalore, India

- Program: www.icts.res.in/program/bssp2019
  This advanced level school is aimed at bridging the gap between masters-level courses and topics in statistical physics at the frontline of current research, ranging from Random Matrix theory to Statistical Physics of biological evolution.

RESEARCH ACTIVITY

Research Fellowship   Dec. 2024 – Today
University of Bologna   Bologna, Italy

- I currently conduct research activities within the project entitled "Stochastic processes in non-homogeneous media as models of anomalous dynamics". The topic of investigation is stochastic processes exhibiting anomalous dynamics, with a focus on first-passage events and statistics of extrema.

Postdoc Position   Jul. 2022 – Jun. 2024
Max Planck Institute for the Physics of Complex Systems   Dresden, Germany

- I conducted independent research in the *Nonlinear dynamics and time series analysis* group directed by Prof. Dr. Holger Kantz. I worked mainly on the study of resetting on random walks and diffusion processes.

Research Fellowship   Apr. 2021 – Mar. 2022
University of Insubria   Como, Italy

- I worked on the research project titled *Caratteristiche anomale di cammini aleatori* regarding the study of spatially inhomogeneous random walks, focusing on the first-passage and transport properties, as well as the statistics of maxima and records.

Scholarship   Jan. 2021 - Mar. 2021
University of Insubria   Como, Italy

- I participated in the research project titled *Cammini aleatori non omogenei* focused on the anomalous features of random walks with space-dependent transition probability. The activity involved both analytical and numerical studies.

Publications

- Radice M., Cristadoro G., Thapa S. *Optimal conditions for first passage of jump processes with resetting*. arXiv: 2410.05835. *Accepted in:* Chaos: An Interdisciplinary Journal of Nonlinear Science

- Radice M., Cristadoro G. *Optimizing leapover lengths of Lévy flights with resetting*. Phys. Rev. E 110, L022103 (2024). DOI: 10.1103/PhysRevE.110.L022103

- Radice M. *First-passage functionals of Brownian motion in logarithmic potentials and heterogeneous diffusion*. Phys. Rev. E 108, 044151 (2023). DOI: 10.1103/PhysRevE.108.044151

- Radice M. *Effects of mortality on stochastic search processes with resetting*. Phys. Rev. E 107, 024136 (2023). DOI: 10.1103/PhysRevE.107.024136

- Radice M. *Non-homogeneous random walks with stochastic resetting: an application to the Gillis model*. J. Stat. Mech. (2022) 123206. DOI: 10.1088/1742-5468/aca587

- Artuso R., Onofri M., Pozzoli G., Radice M. *Extreme value statistics of positive recurrent centrally biased random walks*. J. Stat. Mech. (2022) 103209. DOI: 10.1088/1742-5468/ac98bd

- Radice M. *Diffusion processes with Gamma-distributed resetting and non-instantaneous returns*. J. Phys. A. Math. Theor. 55, 224002 (2022). DOI: 10.1088/1751-8121/ac654f

- Radice M. *One-dimensional telegraphic process with noninstantaneous stochastic resetting*. Phys. Rev. E 104, 044126 (2021). DOI: 10.1103/PhysRevE.104.044126

- Pozzoli G., Radice M., Onofri M., Artuso R. *A Continuous-Time Random Walk extension of the Gillis model*. Entropy 22, 1431 (2020). DOI: 10.3390/e22121431

- Onofri M., Pozzoli G., Radice M., Artuso R. *Exploring the Gillis model: a discrete approach to diffusion in logarithmic potentials*. J. Stat. Mech. (2020) 113201. DOI: 10.1088/1742-5468/abbed6

- Radice M., Onofri M., Artuso R., Pozzoli G. *Statistics of occupation times and connection to local properties of nonhomogeneous random walks*. Phys. Rev. E 101, 042103 (2020). DOI: 10.1103/PhysRevE.101.042103

- Radice M., Onofri M., Artuso R., Cristadoro G. *Transport properties and ageing for the averaged Lévy-Lorentz gas*. J. Phys. A: Math. Theor. 53, 025701 (2020). DOI: 10.1088/1751-8121/ab5990

- Artuso R., Cristadoro G., Radice M., Onofri M. *Non-homogeneous persistent random walks and Lévy-Lorentz gas*. J. Stat. Mech. (2018) 083209. DOI: 10.1088/1742-5468/aad822

Conferences and Presentations

"Nonlinear time series analysis" group seminar	16/05/2024
Max Planck Institute for the Physics of complex systems	Dresden

- Talk title: *Optimizing leapover lengths of Lévy flights with resetting*

Regular and stochastic behaviour in dynamical systems, PRIN conference	06/06/2023
Scuola Normale Superiore	Pisa

- Talk title: *Effects of resetting on stochastic search processes with finite or infinite lifetime*

"Nonlinear time series analysis" group seminar	12/01/2023
Max Planck Institute for the Physics of complex systems	Dresden

- Talk title: *First-passage problems for mortal diffusing particles subject to random restarts: the combined roles of resetting and mortality in stochastic search*

"Nonlinear time series analysis" group seminar	09/08/2022
Max Planck Institute for the Physics of complex systems	Dresden

- Talk title: *Stochastic resetting: how to optimize the search efficiency of diffusion processes and random walks*

SIFS Young Seminars	08/07/2021
Online	Link: youtube.com/watch?v=vvIDKuqgFAU

- Talk title: *The connection of the statistics of occupation time with the local properties of stochastic processes*

Regular and stochastic behaviour in dynamical systems, PRIN conference	13/02/2020
Università di Roma Tor Vergata	Rome

- Talk title: *Some classes of non-homogeneous random walks and their statistical properties*

XXIII Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi   22/06/2018
Università di Parma   Parma
- Talk title: *A persistent random walk on an averaged environment for the Lévy-Lorentz gas*

REFEREE ACTIVITY

Journals: Physical Review Letters, Physical Review Research, Physical Review E, Chaos: An Interdisciplinary Journal of Nonlinear Science, Journal of Statistical Mechanics: Theory and Experiment, Journal of Physics A: Mathematical and Theoretical, Entropy.

ACADEMIC TEACHING EXPERIENCE

Matematica 2 (Calculus II)   Mar. 2021 – Jun. 2021
University of Insubria   Como, Italy
- Teaching assistant

Meccanica Analitica (Mechanics)   Sep. 2019 – Jan. 2020
University of Insubria   Como, Italy
- Teaching assistant

Matematica 2 (Calculus II)   Mar. 2019 – Lug. 2019
University of Insubria   Como, Italy
- Teaching assistant

Meccanica Analitica (Mechanics)   Sep. 2018 – Jan. 2019
University of Insubria   Como, Italy
- Teaching assistant

Matematica 2 (Calculus II)   Feb. 2016 – Jul. 2016
University of Insubria   Como, Italy
- Teaching assistant

SKILLS

Languages: Italian (Native), English (C1), German (A2)
Programming: Python, Java, C++, MATLAB

Note: Date format is MM/DD/YYYY