

Education

- 2022–present** **PhD in Physics**
University of Gothenburg, Sweden
Supervisor: Johannes Hofmann. Expected completion: February 2027. Co-organizer of the theoretical physics seminar.
- 2021–2022** **MSc in Physics of Complex Systems**
Universitat de les Illes Balears / IFISC (CSIC-UIB), Spain
Final grade: 9.50/10. Master’s thesis: *Generating functional analysis of Lotka–Volterra equations with Hebbian couplings*. Supervisor: Tobias Galla. Thesis resulted in a *Physical Review E* publication.
- 2017–2021** **BSc in Physics, Fundamental Physics track**
Universidad Complutense de Madrid, Spain
Final grade: 9.59/10. Bachelor’s thesis: *Brownian particle transistor: proof of concept*. Supervisors: Luis Dinis and Juan Manuel Rodríguez Parrondo. Extraordinary Undergraduate Prize (2020/21).

Publications

Peer-reviewed articles

1. E. Rozas Garcia, A. W. Karlsson, and J. Hofmann. “Universal fragmentation in annihilation reactions with constrained kinetics”. In: *Physical Review Research* 6.3 (Aug. 2024), p. L032071. DOI: 10.1103/PhysRevResearch.6.L032071.
2. E. Rozas Garcia and J. Hofmann. “Fluctuation corrections to Lifshitz tails in disordered systems”. In: *Physical Review E* 109.3 (Mar. 2024), p. L032103. DOI: 10.1103/PhysRevE.109.L032103.
3. E. Rozas Garcia, M. J. Crumpton, and T. Galla. “Niche overlap and Hopfield-like interactions in generalized random Lotka–Volterra systems”. In: *Physical Review E* 108.3 (Sept. 2023), p. 034120. DOI: 10.1103/PhysRevE.108.034120.

Preprints

1. E. Rozas Garcia and J. Hofmann. “Instanton theory and fluctuation corrections to the thermal nucleation rate of a ferromagnetic superfluid”. Preprint. Dec. 2025. DOI: 10.48550/arXiv.2512.20734. arXiv: 2512.20734 [`cond-mat.quant-gas`].

Research Experience

- 2022–present** **Doctoral Researcher**
University of Gothenburg, Sweden
Statistical-field-theory research on nonequilibrium and disordered systems. Current work develops an instanton/fluctuation theory for thermal nucleation in a ferromagnetic superfluid; previous projects include Lifshitz tails and constrained reaction–diffusion dynamics.
- 2021–2022** **MSc JAE Intro Fellow**
IFISC (CSIC-UIB), Spain
Studied generalized random Lotka–Volterra systems with Hebbian interactions using generating-functional and dynamic mean-field methods and numerical simulations. JAE Intro fellowship, October 2021–February 2022; supervisor: Tobias Galla.
- Jul.–Sep. 2021** **Research Intern**
Donostia International Physics Center (DIPC), Spain
Studied the electronic structure of magic-angle graphene superlattices under the supervision of Thomas Frederiksen.
- 2019–2020** **Visiting Undergraduate Student**
University of California, Irvine, USA
Year-long undergraduate exchange. Joined Albert Siryaporn’s group for a project modelling bacterial swarms with fluid mechanics and finite-element simulations.

Selected Talks and Conference Presentations

- Mar. 2026 **Poster, Wilhelm and Else Heraeus Seminar – *Challenges and Prospects of Low-Dimensional Quantum Gases*, São Paulo, Brazil.** Presented work on thermal nucleation in a ferromagnetic superfluid; awarded Best Poster Prize.
- Mar. 2026 **Contributed talk, FisEs Joven.** Presented work online on instanton theory and fluctuation corrections to thermal nucleation.
- Jun. 2025 **Poster and flash presentation, IHES Summer School – *Statistical Aspects of Nonlinear Physics*, France.** Presented work on constrained reaction–diffusion dynamics and universal fragmentation.
- Apr. 2025 **Invited departmental talk, Universidad de Extremadura, Spain.** Presented *Universal fragmentation in annihilation reactions with constrained kinetics*.
- Apr. 2024 **Invited departmental talk, Universidad de Huelva, Spain.** Presented *Fluctuation corrections to Lifshitz tails in disordered systems*.
- Mar. 2024 **Contributed talk, 13th Nordic Workshop on Statistical Physics, Nordita, Sweden.** Presented work on Lifshitz tails in disordered systems; received workshop travel support.

Awards, Fellowships and Competitive Selections

- 2026 **Best Poster Prize, Wilhelm and Else Heraeus Seminar.** *Challenges and Prospects of Low-Dimensional Quantum Gases*, São Paulo, Brazil.
- 2025 **Adlerbert Research/Travel Grant, University of Gothenburg.** SEK 50,000 awarded for international research travel and collaboration.
- 2024 **Selected participant, 73rd Lindau Nobel Laureate Meeting.** Qualified through the meeting’s global multi-step selection process; Lindau, Germany.
- 2023 **Adlerbert Travel Scholarship, University of Gothenburg.** SEK 20,000 for research travel abroad.
- 2021–2022 **JAE Intro Research Fellowship, Spanish National Research Council (CSIC).** Five-month fellowship for the project *Statistical physics of complex systems* at IFISC, supervised by Tobias Galla.
- 2021 **IFISC Mobility Scholarship.** Competitive scholarship supporting the MSc in Physics of Complex Systems at the Universitat de les Illes Balears.
- 2021 **Departmental Collaboration Scholarship, Spanish Ministry of Education.** Competitive scholarship supporting research collaboration with the Department of Physics at the Universitat de les Illes Balears.
- 2021 **Extraordinary Undergraduate Prize, Universidad Complutense de Madrid.** Awarded for outstanding academic performance in the BSc in Physics, academic year 2020/21.
- 2019–2022 **Academic Excellence Scholarships, Community of Madrid.** Three competitive awards for high academic performance (academic years 2018/19, 2019/20 and 2020/21).

Teaching

- 2023–2025 **Teaching Assistant – Nonequilibrium Processes in Physics, Chemistry, and Biology (TIF106)**
University of Gothenburg, MSc level
Three course offerings. Led exercise classes; developed problems and solutions; contributed to course and examination design and grading.
- 2022–2025 **Laboratory Instructor – Physics 2 (FFY144)**
University of Gothenburg, undergraduate engineering
Four course offerings. Led the X-ray diffraction laboratory, supported exercise classes, and developed or revised exercise and laboratory materials.
- 2023–2025 **Invited Lectures for Secondary-School Students**
IES San Sebastián, IES Pintor Pedro Gómez, and IES Fuentepiña, Spain
Delivered three 1hr physics lectures on *Casi Cristales* for 3rd- and 4th-year secondary-school students.
- 2022 **Teaching Assistant – Mechanics B (FYP302)**
University of Gothenburg, undergraduate physics
Supported problem-solving sessions for third-year physics students.