

Giulia Pisegna

Max Planck Institute for Dynamics and Self-Organization

Research Experience

2022–present **Postdoctoral Researcher**

Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany.

Director: Prof. Ramin Golestanian.

- Leading projects: polar active matter approach to multi-species system with non-reciprocal interactions.

2018–2022 **Graduate Researcher**

University of Rome La Sapienza, Italy.

- Leading projects: analytical and numerical studies of active matter models to reproduce experimental data of natural swarms.

Mar-Oct **Undergraduate Researcher**

2018 *University of Rome La Sapienza*, Italy.

- M.Sc. in Theoretical Physics.

Aug-Sept **Research Intern**

2017 *Albert Einstein Center for Fundamental Physics*, Bern, Switzerland.

- Leading project: proton radiography.

Education

2018–2021 **PhD in Theoretical Physics**

University of Rome La Sapienza, Italy.

Supervisors: Dr Andrea Cavagna, Prof Tomas S. Grigera.

- Thesis: ‘Study of the critical dynamics of active matter models to explain anomalous relaxation in natural swarms’.
- Major: Non-equilibrium statistical field theory, active matter, collective behavior.
- Final grade: Ottimo cum Laude.

2016–2018 **Master of Science in Physics**

University of Rome La Sapienza, Italy.

- Major: Theoretical physics, condensed matter, statistical physics.
- Thesis: ‘Critical dynamics of a non-dissipative statistical model for biological systems’, Supervisor: Dr Andrea Cavagna.
- GPA: 30/30 | Final grade: 110/110 cum Laude.

2013–2016 **Bachelor of Science in Physics**

University of Rome La Sapienza, Italy.

- Thesis: ‘Transizioni di fase del secondo ordine, con una applicazione numerica al modello di Ising in due dimensioni’, Supervisor: Dr Andrea Cavagna.
- GPA: 29.7/30 | Final grade: 110/110 cum Laude.

Awards

2019 **con.Scienze 2019.**

Italian national award for the 10 best master thesis in scientific topics (1k).

Invited talks

- Jun 2026 **Non-equilibrium Dynamics, from Active Matter to Evolutionary Dynamics.** KITP, Santa Barbara California, USA.
- May 2026 **Statistical Physics and Complexity Webinar Series.** The University of Edinburgh UK.
- Jan 2026 **London Active Matter Meeting.** Imperial College UK.
- Dec 2025 **Seminar,** University of Montpellier, Montpellier France.
- Dec 2025 **Seminar,** University of Bordeaux Bordeaux, France.
- Nov 2025 **Seminar,** Statistical Physics seminars, University of Goettingen, Goettingen Germany.
- Sep 2025 **Seminar,** Statistical Physics Group, SISSA Trieste Italy.
- Feb 2025 **Seminar,** Center for Computational Biology, Flatiron Institute New York, USA.
- Nov 2024 **Active Solids: from metamaterials to biological tissues,** KITP program UCSB Santa Barbara, California USA.
Invited participation
- Oct 2024 **Seminar,** ENS Lyon, Lyon, FR.
- Aug 2023 **Collective Behavior,** Isaac Newton Institute, Cambridge UK.
- Apr 2023 **Interdisciplinary challenges: from non-equilibrium physics to life sciences,** CNR-University of Rome La Sapienza, Rome IT.
- May 2021 **Seminario delle Meccaniche,** University of Rome La Sapienza, Rome IT.
- May 2021 **Laboratory of Theoretical Physics and Statistical Models (LPTMS),** University of Paris-Saclay, Paris FR.
- Jan 2021 **Three lessons on Renormalization Group,** ENS, Paris FR.

Contributions to conferences and summer schools

- July 2025 **StatPhys29** Firenze, IT.
Contributed talk
- June 2025 **Interdisciplinary challenges in the physics of complexity and life EMBL** Heidelberg, DE.
Poster
- May 2025 **Conservation laws and non-reciprocity** University of Münster Munster, DE.
Poster
- Apr 2025 **Statistical mechanics of active matter** Institut Henry Poincare Paris, FR.
Contributed talk
- Apr 2024 **Kardar–Parisi–Zhang equation: new trends in theories and experiments,** Les Houches School of Physics Les Houches, FR.
Contributed talk (30 min)
- May 2023 **In search of model structures for non-equilibrium systems,** University of Münster, Münster DE.
Contributed talk (20 min)

- Oct 2022 **Active Matter and Complex Media**, Cargese FR.
Poster
- Oct 2021 **International Conference of Complex Systems**, Complex Systems Society, Lyon FR.
Contribute talk (20 min)
- June 2021 **Beg Rohu Summer School 2021**, ENS, Bretagne FR.
Poster
- Nov 2020 **Paris Biological Physics Community Day 2020**, ENS, Institut Curie, Universite Paris-Diderot, Paris, FR.
Contributed talk (10 min)
- July 2019 **Boulder Summer School 2019: Theoretical Biophysics**, University of Colorado, Boulder, Colorado (USA).
Poster
- July 2019 **Statistical Mechanics of Swarming Behavior - Stat Phys 27 Satellite Workshop**, IFLYSIB, La Plata, Argentina.
Poster
- Nov 2018 **3rd Course on Multiscale Integration in Biological Systems**, Institut Curie, Paris, FR.
Contributed talk (15 mins)
- July 2017 **Master School on New Frontiers in Optical Trapping and Optical Manipulation**, ICFO, Institute of Photonic Science, Barcelona, Spain.

Teaching and Supervision

- 2024-present **Mentoring one master student of the Matter to Life Program**, Max Planck Institute for Dynamics and Self-Organization Goettingen, Germany.
- 2022-2024 **Active matter course**, University of Goettingen, Germany.
Contributed lessons.
- 2019–2022 **Teaching Assistant in Mathematical Methods for Economics and Finance**, LUISS Guido Carli, Rome.
- 2017–2019 **Teaching Assistant in Coding in C**, University of Rome La Sapienza.

Journal Reviewing Experience

Physical Review Letters and Physical Review E, Nature Communications, Journal of Statistical Mechanics, Soft Matter, Physical Review X.

Academic Service

- 2022-present **Journal club of the Living Matter Physics department**.
Organized the Journal Club, conducted sessions and planned meetings.
- 2025 **Organizer of Interdisciplinary Challenges in the Physics of Complexity and Life**. Conference, Cargese, France. April, 20-25th 2026.
- 2025 **Organizer of Assembling Life: Synthetic Cells, Dynamic Matter and Multicellularity**. Summer School, Cargese, France. July 18th, August 1st 2027.

Outreach

- 2025 **Max Planck Goes to School** Goettingen, Germany.
Dissemination visit to ISG school.
- 2023 **Pint of Science.** Goettingen, Germany.
Science dissemination event, 40 min talk.
- 2021 **ResearchPod.**
Uncovering universal behavior in biological systems, Podcast (Spotify, ResearchPod, Apple-Music)
- 2018-2021 **Women in Science.**
Actively organized International day of Women in Science events, seminars and posters.