

Giulia Pisegna

La Sapienza, University of Rome

Current Position

2018–present **Ph.D. student in Theoretical Physics**, *University of Rome La Sapienza*, Rome IT.
Supervisors: Dr. A. Cavagna and Prof. T.S. Grigera

Education

- 2016–2018 **Master's Degree in Physics**, *University of Rome La Sapienza*, Rome IT.
GPA - 30/30 | Major: Theoretical Physics, Statistical Mechanics. | Final grade: 110/110 cum Laude.
- 2013–2016 **Bachelor's Degree in Physics**, *University of Rome La Sapienza*, Rome IT.
GPA - 29.7/30 | Final grade: 110/110 cum Laude
- 2007–2013 **Classical High School diploma**, *Liceo Classico Alessandro Torlonia*, Avezzano IT.
Final grade: 100/100 cum Laude.

Publications and Thesis

- **Natural swarms in 3.99 dimensions.** A. Cavagna, L. Di Carlo, I. Giardina, T.S. Grigera, G. Pisegna, M. Scandolo. *arXiv:2107.04432* (2021)
- **Renormalization group study of a field theory with mode-coupling interactions in the presence of a solenoidal constraint.** A. Cavagna, L. Di Carlo, I. Giardina, T.S. Grigera, G. Pisegna, M. Scandolo. *Journal of Statistical Physics* (2021)
- **Marginal speed confinement resolves the conflict between correlation and control in natural flocks of birds** A. Cavagna, A. Culla, X. Feng, I. Giardina, T.S. Grigera, W. Kion-Crosby, S. Melillo, G. Pisegna, L. Postiglione, P. Villegas. *arXiv:2101.09748* (2021)
- **Equilibrium to off-equilibrium crossover in homogeneous active matter.** A. Cavagna, L. Di Carlo, I. Giardina, T. S. Grigera, Giulia Pisegna. *Physical Review Research* 3 (1), (2021)
- **Dynamical renormalization group approach to the collective behavior of swarms.** A. Cavagna, L. Di Carlo, I. Giardina, L. Grandinetti, T.S. Grigera, G. Pisegna, *Physical Review Letters* 123 (26) , (2019)
- **Renormalization group crossover in the critical dynamics of field theories with**

piazzale Aldo Moro 5 – Rome, Italy



mode coupling terms. A. Cavagna, L. Di Carlo, I. Giardina, L. Grandinetti, T.S. Grigera, G. Pisegna, *Physical Review E* 100 (6), 062130, (2019)

- **Proton radiography by multiple Coulomb scattering with nuclear emulsion detectors.** S. Braccini, T. Carzaniga, G. Pisegna, P. Scampoli. *Instruments* (MDPI) (2019)
- Ph.D thesis: **Non-equilibrium effects in an inertial statistical model for natural swarms (temporary).** Supervisors: Dr. Andrea Cavagna and Prof. Tomas S. Grigera
- Master thesis: **Critical dynamics of a non dissipative statistical model for biological systems.** Supervisor: Dr. Andrea Cavagna, (2018)
- Bachelor thesis: **Transizioni di fase del secondo ordine, con una applicazione numerica al modello di Ising in due dimensioni.** Supervisor: Dr. Andrea Cavagna (2016)

Awards

- 2019 Italian national award "con.Scienze 2019" for the ten best master thesis in scientific subjects.
- 2017–2018 Pathway of excellence for deserving students of the University of Rome La Sapienza.

Schools, Internships and Workshops

- 28/05/2021 **Beg Rohu Summer School 2021**, ENS, Bretagne, France.
- 13/06/2021 Poster
- 19/05/2021 **Seminario delle Meccaniche**, Sapienza, University of Rome, Rome, IT.
Invited talk, webinar
- 04/05/2021 **Laboratory of Theoretical Physics and Statistical Models (LPTMS)**, University of Paris-Saclay, Paris, France.
Invited talk, webinar
- 12/11/2020 **Paris Biological Physics Community Day 2020**, ENS, Institut Curie,
- 13/11/2020 *Universite Paris-Diderot*, Paris, France.
Talk of 10 min
- 08/07/2019 **Boulder Summer School 2019: Theoretical Biophysics**, University of
- 27/07/2019 *Colorado*, Boulder, Colorado (USA).
Poster
- 02/06/2019 **Scientific collaboration with prof. Tomas S. Grigera**, IFLYSIB, La
- 06/07/2019 *Plata*, Argentina.
- 02/07/2019 **Statistical Mechanics of Swarming Behavior - Stat Phys 27 Satellite**
- 06/07/2019 **Workshop**, IFLYSIB, La Plata, Argentina.
Poster

- 07/11/2018 **3rd Course on Multiscale Integration in Biological Systems**, *Institut Curie*, Paris, France.
13/11/2018 Talk of 15 min
- 01/08/2017 **Internship of two months with a project of Medical Physics**, *Albert Einstein Center for Fundamental Physics*, Bern, Switzerland.
01/10/2017
- 03/07/2017 **Master School on New Frontiers in Optical Trapping and Optical Manipulation**, *ICFO, Institute of Photonic Science*, Barcelona, Spain.
07/07/2017

Teaching Experience

- 2020–present **Mathematical Methods for Economics and Finance**, *LUISS Guido Carli*, Rome IT, Teaching Assistant.
Language: English
- 2019–2020 **Mathematical Methods for Economics and Finance**, *LUISS Guido Carli*, Rome IT, Teaching Assistant.
Language: Italian
- 2017–2019 **Coding in C (first course of the Bachelor Degree in Physics)**, *University of Rome*, Rome IT, Teaching Assistant.
Language: Italian
- 2013–present **Support to high school and university students**, Rome IT.
Math and Physics

Work Experience

- 2014–2016 **Assistant Librarian**, *Library of Physics*, University of Rome, La Sapienza, Rome IT.
2 scholarships of the Physics Department

Languages and Computer Skills

- Italian native
English advanced
French basic
- Programming C, C++, Python, Root, Mathematica
Softwares Latex, Office
O.S. Mac OS X, Linux