

Allegato B

LORENZO CAPRINI

Curriculum Vitae

Place: Duesseldorf, Germany

Date: 26/06/2023

Part I – General Information

Full Name	Lorenzo Caprini
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Part II – Education

Type	Year	Institution	Notes (Degree, Experience,...)
Ph.D. in “Mathematics in Natural, Social and Life sciences	November 2016 - November 2019	Gran Sasso Science Institute(GSSI), L’Aquila (Italy)	Ph.D thesis defended on 3/12/2019. Final mark: with honors Title of the thesis: Statistical Mechanics of Self-Propelled Systems. Advisors: Prof. Angelo Vulpiani and Prof. Umberto Marini Bettolo Marconi
Master’s Degree (Laurea magistrale) in Physics	October 2014 - July 2016	University of Rome “La Sapienza”, Roma, Italy	Master’s thesis defended on 15/07/2016 Final mark: 110/110 cum laude Title of the thesis: A model of non-equilibrium Statistical Mechanics for the Fourier’s law. Advisor: Prof. Angelo Vulpiani
Bachelor’s Degree (Laurea triennale) in Physics	October 2011 - October 2014	University of Rome “La Sapienza”, Roma, Italy	Bachelor’s thesis defended on 05/11/2014 Final mark: 110/110 cum laude Title of the thesis: Euler flow and point vortices Advisor: Prof. Carlo Marchioro
High-School diploma – Classical studies	September 2006 - June 2011	Liceo Classico “Orazio”, Roma	Final mark 100/100

Part III – Appointments

IIIA – Academic Appointments

03/10/2022- in progress (03/10/2033). Italian National Qualification as associate in the Italian higher education system in the call 2021/2023 for the disciplinary field FIS 02/A2 (Abilitazione Scientifica Nazionale per professore universitario di seconda fascia nel settore concorsuale FIS 02/A2).

03/10/2022- in progress (03/10/2033). Italian National Qualification as associate in the Italian higher education system in the call 2021/2023 for the disciplinary field FIS 02/B2 (Abilitazione Scientifica Nazionale per professore universitario di seconda fascia nel settore concorsuale FIS 02/B2).

Start	End	Institution	Position
01/10/2023	30/09/2025	Main: Heinrich-Heine University <i>Düsseldorf</i> . Secondment: CNRS (Paris)	Marie-Curie fellow (fully funded ~ 173 k) Host: Prof. H. Loewen (Heinrich-Heine University <i>Düsseldorf</i>). Secondment: Prof. O. Dauchot (CNRS Paris). Project: Chiral active granular particles (CHIAGRAM).
01/10/2021	30/09/2023	Heinrich-Heine University <i>Düsseldorf</i>	Humboldt fellow (fully funded) Host: Prof. H. Loewen (Heinrich-Heine University <i>Düsseldorf</i>) Project: The effect of disorder in Active Matter
15/03/2020	30/09/2021	University of Camerino	Postdoctoral researcher. Funded by MIUR PRIN 2017 Project No. 201798CZLJ: “Sistemi fuori dall’equilibrio e fenomeni di trasporto”

IIIB – Other Appointments

Invited and contributed talks and seminars.

Summary: Speaker in 20 events (1 to be held in August 2023).

4: Invited speaker in international conferences.

7: Invited seminars.

9: Contributed speaker in international conferences.

Invited speaker in conferences and workshops (4)

- April 17-21, 2023: Conference “Interchall2023: Interdisciplinary Challenges: from non-Equilibrium Physics to Life Sciences”. Centro Congressi Frentani, Rome, Italy. Title of the talk: Collective phenomena in active Brownian particles
- September 5-9, 2022: Conference “Transport in Narrow Channels”. Institute d’Etudes Scientifiques de Cargèse – Cargèse, France. Title of the talk: Transport properties of active particles in narrow channels”.

- July 4-6, 2022: Conference “Coarsegrained2022: Coarse-grained description for non-equilibrium systems and transport phenomena”. CNR, Rome, Italy. Title of the talk: Active matter at high density: collective excitations, entropy production, and spatial velocity correlations.
- February 21, 2022: Workshop “Active stochastic models and field theories, the Rome scene”, Sapienza University, Italy. Title of the talk “Microscopic model, non trivial correlation in active matter”.

Invited seminars (7)

- June 15, 2023. Invited Seminar at the University of Mainz for an interview as a Junior Professor. Title of the seminar: “Emergent Collective Phenomena in Active Matter”.
- February 28, 2023, at Chalmers University of Technology, Gothenburg, Sweden. Title of the seminar: Entropy production in crystals across length scales: from solid-state physics to non-equilibrium soft matter”.
- March 15, 2022 at SISSA-ICTP Statistical Physics Seminars, Trieste, Italy. Title of the seminar: “Spatial velocity correlations and spontaneous velocity order in active Brownian particles”.
- December 8, 2021 at the University of Düsseldorf, Germany. Title of the seminar: “Spatial velocity correlations in systems of active particles”.
- April 20, 2021 at the University of Dresden, Germany. Title of the seminar: “Spatial velocity correlations and spontaneous velocity alignment in spherical active Brownian particles”.
- January 14, 2021: Online young seminar. Invited by SIFS (Società Italiana di Fisica Statistica). Title of the seminar: “Spatial patterns in the velocity field of Active Matter systems”.
- February 15, 2019 at the University of Düsseldorf, Germany. Title of the seminar: “Activity-induced freezing for active particles”.

Contributed speaker in conferences and workshops (9)

- August 08-12, 2023: Conference “StatPhys28”, Tokyo, Japan, Title of the talk: “Entropions: collective excitations of non-equilibrium active crystals”.
- June 19-23, 2023: Conference “Active Matter at Surfaces and in Complex Environments”, Dresden, Germany, Title of the talk: “Entropions as collective excitations in active crystals”.
- May 29 - June 2, 2023: Conference: “XXVII Sitges Conference on Statistical Mechanics Nonequilibrium Phenomena: from Quantum to Macroscopic Scales”. Title of the talk: “Emergent memory from tapping collisions in active matter”.
- March 26-31, 2023: Conference “DPG-Frühjahrstagung (DPG Spring Meeting)”, Dresden, Germany. Title of the talk: “Entropions as vibrational excitations in active solids”.
- February 13-15, 2023: Workshop “MathMicS 2023: Mathematics and microscopic theory for random Soft Matter systems”, Düsseldorf, Germany. Title of the talk: “Entropions vibrational excitations in active crystals”.
- December 5-7, 2022: Conference “Active Days EUTOPIA – Challenges in Active Matter”, Neuville Université, CY Cergy Paris University, Paris, France. Title of the talk: “Entropions new collective excitations in active solids”.
- October 26-29, 2020: Online Conference “Motile Active Matter, Microswimmers - From Single Particle Motion to Collective Behaviour”, Organized by the DFG Priority Programme SPP 1726. Title of the talk: “Spontaneous velocity alignment in systems of self-propelled disks without alignment interactions”.
- September 21-25, 2020: Conference “Italian Soft Days 2020”, Bari, Italy (online conference). Title of the talk: “Spontaneous velocity order in systems of self-propelled disks”.
- June 20-22, 2018: Workshop: “XIII Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi”, Università degli studi di Parma, Italy. Title of the talk: “Activity induced delocalization and freezing for self-propelled particles”.

Organization of scientific events.

Member of the organizing committee in two conferences:

- June 12 - 14, 2019. Workshop/School: Statistical Mechanics of Active Matter. . Gran Sasso Science Institute (GSS), L'Aquila, Italy. Organizing committee: L. Caprini, M. Cencini, P. Marcati, U. Marini Bettolo Marconi, A. Vulpiani.
- April 8-12, 2024. Conference InterChal24 to be held in Paris, funded by CECAM (Paris node and confunded by Toulouse node). Organizing committee: L. Caprini, S. Marbach, A. Sciortino, M. Rinaldin, P. Digregorio, G. Forte.

Referee for scientific journals

Referee for more than 50 papers on scientific peer reviewed journals, such as APS publishing groups (Phys. Rev. Lett. Phys. Rev. X, Phys. Rev. Research, Phys. Rev. E), nature publishing groups (Nat. Commun., Commun. Phys., Sci. Rep.), AIP publishing (J. Chem. Phys.), Royal Society of Chemistry (Soft Matter, PCCP) and in more specialistic journals in statistical physics such as New J. Phys, J. Stat. Mech. Theory Exp. Physica A, J. Condens. Matter Phys. among the others.

Part IV – Teaching experience

Year	My Institution	Teaching activity
2016	University of Roma "La Sapienza"	Tutoring activity: exerciser for the lectures of Physics for Biology (Borsa di studio). Frequency: 1 per week during the whole semester. Professor: Prof. M.G. Betti, Contents: Physics 1 and thermodynamics,
2020	University of Camerino	External advisor per la tesi di Laurea magistrale in Fisica di Laura Natali presso l'Università di Roma La Sapienza (Senior advisor: Dr. Fabio Cecconi). The result of the thesis has been published in a peer-review journal.
2021	University of Camerino	External advisor per la tesi di Laurea magistrale in Fisica di Pierpaolo Bilotto presso l'Università di Roma La Sapienza (Senior advisor: Prof. Angelo Vulpiani). The result of the thesis has been published in a peer-review journal.
2021-2023	Heinrich-Heine University Düsseldorf	Co-supervision of one Ph.D student, Alexander R. Sprenger. Project: active matter. Result: two papers in peer review journals.
2022-2023	Heinrich-Heine University Düsseldorf	Supervision of 2 Bachelor's students: Maxim Rott (project: active particles on curved manifolds), Anouar Moumane (project: stochastic thermodynamics of active particles),

Part V - Society memberships, Awards and Honors

Year	Title
2020	Award “Premio Giovanni Paladin” 2020-edition, assigned by Società Italiana di Fisica Statistica (SIFS) “Per la qualità e l’originalità del lavoro svolto e la chiarezza di esposizione della tesi di dottorato, e gli interessanti contributi dati alla meccanica statistica dei sistemi di non equilibrio e in particolar modo allo studio delle proprietà spazio-temporali della materia.”
2019	Travel award winner, sponsored by the journal “Entropy” - MDPI – to attend and present my contribution at the conference StatPhys 27 held in Buenos Aires from July 8th to July 12th
2016	Awards: “Percorso di Eccellenza”, Università di Roma La Sapienza.
2016	Scholarship: “Borsa di collaborazione”, Università di Roma La Sapienza. Tutoraggio per il corso di Fisica a Biologia.
2014	Scholarship: “Studente meritevole”, Università di Roma La Sapienza.

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Year	Title	Program	Grant value
2023	Marie Skłodowska-Curie fellowship	HORIZON-MSCA-2022-PF-01-01, European Research Executive agency	
2021	Humboldt fellowship	Humboldt fellowship, years 2021-2023 - for postdoctoral researchers	

Part VII – Research Activities

Keywords	Brief Description
Non-equilibrium statistical physics	I have pursued my academic career in non-equilibrium statistical physics, specifically focusing on active matter, which lies at the intersection of physics, chemistry, biology, and engineering science. Currently, my research centers around the exploration of emergent collective phenomena in active matter and their theoretical understanding within the framework of stochastic thermodynamics. Additionally, I am actively involved in the experimental realization of active particles and their collective phenomena through active granular vibrobots. Furthermore, my research endeavors encompass the theoretical and numerical investigation of active matter in complex environments, specifically active Janus colloids and spermatozoa.
Active matter	
Stochastic processes	
Collective phenomena	
Stochastic thermodynamics	

Summary of the current research lines:

i) Theoretical and numerical investigations of collective phenomena in active matter (papers [1, 5, 6, 7, 17, 23, 25, 28, 31]) . The aim of this research is to understand the underlying principles behind collective effects in non-equilibrium systems, leading to the development of a thermodynamics theory applicable to systems far from equilibrium.

ii) Theoretical research in linear response theory (papers: [4, 11, 19, 22, 26]) and stochastic thermodynamics (papers [8, 21, 36, 39, 40, 41]) and its application to non-equilibrium systems, including active matter and its collective phenomena. Currently, I am investigating the connections between uncertainty in thermodynamic relations and linear response theory.

iii) Theoretical and numerical investigation of the dynamics of non-equilibrium active particles in complex environments (papers [13, 16, 18, 29]), channels (papers [12, 24, 27, 34]), and external potentials (papers [2, 3, 10, 42]), with a focus on the escape problem in a double well-potential and first passage properties (papers [9, 20, 33]).

iv) Theoretical and experimental research on vibrating robots (MSCA proposal). These robots are 3D-printed plastic objects with legs that can jump in space and behave as active particles. I am investigating their tendency to self-organize and form stable and compact groups that rotate and move together, exhibiting collective effects. This research has been funded by the Individual Marie Curie fellowship (~173 k).

v) Collaboration with experimental and theoretical groups in Rome, led by Prof. A. Puglisi and Prof. R. Di Leonardo, to study the behavior of spermatozoa swimming in microstructures (paper [14]). Male factor infertility is estimated to contribute to roughly half of all fertility problems. We are designing a method to sort high-motility spermatozoa at high concentrations, which will be beneficial for assisted reproduction technologies.

vi) Theoretical and numerical collaboration with the experimental soft matter group in Düsseldorf, led by Prof. I. Buttinoni, and the research group in Mainz, led by Thomas Palberg, to investigate the physics of active colloids (paper [15]). The collaboration focuses on characterizing the behavior of active colloids in crowded and complex environments, with a particular emphasis on their response to environmental stimuli. The research aims to develop a method using active colloids as efficient microsize probes to investigate the properties of active materials.

Scientific Competencies.

My expertise encompasses various areas, including non-equilibrium statistical mechanics, stochastic processes, and soft matter. I possess extensive experience in both numerical simulations, such as particle simulations and data analysis, and theoretical methods, such as path-integral techniques, fluctuating hydrodynamics, and perturbative/approximate solutions of partial differential equations. Furthermore, I have acquired proficiency in stochastic models for active matter, linear response theory, stochastic thermodynamics, and other fundamental tools of non-equilibrium statistical physics. I have developed and deepened these competencies throughout my academic journey, starting from my Ph.D. and further refining them throughout my career. As supported by my established collaborations (see paragraph Scientific collaborations), I am proficient in numerical simulations to match experimental results both for active colloids (paper [14]) and sperm (paper [15]). I have recently gained experimental experience with active granular particles for which I have obtained the Individual Marie Curie fellowship. I am an expert in manufacturing 3D-printed objects (vibrobots), performing experiments based on granular particles, and tracking their trajectories through specific software.

Scientific Collaborations.

Throughout my academic journey, I have engaged in several fruitful scientific collaborations. I have continued to collaborate with my Ph.D. advisors, Prof. A. **Vulpiani** (University of Rome) and Prof. U. **Marini Bettolo Marconi** (University of Camerino), focusing on the statistical mechanics of active matter, encompassing both theory and simulations.

In October 2021, I was awarded the Humboldt fellowship, which enabled me to join the research group led by Prof. H. **Löwen**, allowing me to continue my work on active systems. In addition to collaborations with my previous and current supervisors, I have established scientific collaborations that have resulted in publications with the following researchers:

- [From 2018] Dr. A. **Puglisi** (CNR, Rome), Dr. F. **Cecconi** (CNR, Rome), and Dr. A. **Sarracino** (Vanvitelli University) on topics related to non-equilibrium statistical physics and active systems. These long-term collaborations have yielded numerous scientific publications (~20), including notable ones such as: i) Caprini, Marconi, Puglisi. Phys. Rev. Lett.124 (7), 078001, 2020. ii) Caprini, A Puglisi, A Sarracino. Symmetry 13 (1), 81, 2021. iii) Caprini, Cecconi, Maggi, Marconi. Phys. Rev. Research 2 (4), 043359, 2020.

- [From 2021] Prof. R. **Di Leonardo** (University of Rome) and Dr. C. **Maggi** (CNR) on the topic of spermatozoa swimming in microstructures. This collaborative project, funded by Regione Lazio (P.I. Puglisi), has resulted in a publication: Nath, Caprini, Maggi, ..., Di Leonardo, Puglisi. Lab on a Chip 23 (4), 773-784, 2023.

- [From 2022] Collaborations with Prof. I. **Buttinoni** (University of Duesseldorf) and Prof. L. **Alvarez** (University of Bordeaux) on experiments involving passive and active colloids. This recent collaboration has already led to a publication: Buttinoni, Caprini, Alvarez et al. Europhysics Letters 140 (2), 27001, 2022. This collaboration has recently involved also the group of Prof. T. **Palberg** at the university of Mainz.

- [From 2022] Collaboration with Prof. R. M. **Geilhufe** (University of Gothenburg) to apply stochastic thermodynamics to solid-state physics from a theoretical perspective. Our work is currently under review: Caprini, Löwen, Geilhufe. arXiv preprint arXiv:2302.02716, 2023.

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Research Article published in peer review international journals	36	Scopus / web of science	2018	2023
Preprints submitted in peer review international journals	4	Google Scholar	2022	2023
Books (chapter)	1	Scopus	2022	2022
Ph.D thesis	1	Google Scholar	2019	2019

Total Impact factor	<p>a) 133,435 – Sum of journal’s impact factors, when available (i.e. for 33 products), related to the publication year (for product since 2021 it is taken the year 2021, source Web of Science); The 3 papers published in Phys. Rev. Research (APS) have not a journal’s impact yet.</p> <p>b) 44,162 – Sum of journal’s impact factor, when available, related to the indexed products presented for the evaluation and to the publication year (for products since 2021 it is taken the year 2021, source Web of Science). T</p>
Average impact factor	4,04 – average impact factor per product [133.435/33]. The average has been obtained by considering the number of papers already indexed with an impact factor, i.e. 33.
Total Citations	<p>a) 724 (Scopus). Citations are related to the total products indexed in Scopus, 36 research articles and 1 chapter of a book;</p> <p>b) 458 (Scopus). Citations related to products presented for the evaluation indexed in Scopus, 12 Research articles.</p>

Average Citations per Product	a) 20.1 (Scopus), i.e. 724/36, average citations per product related to the total products indexed in Scopus, 36 research articles; b) 38.2 (Scopus), i.e. 458/12, Average citations per product related to those presented for the evaluation indexed in Scopus, 12 Research articles.
Hirsch (H) index	16 (Scopus)
Normalized H index*	4.57 (H-index divided by the academic seniority, obtained as 16/3.5, where the denominator stands for the number of years since the Ph.D. achievement in December 2019)

*H index divided by the academic seniority.

Part IX– Selected Publications

List of the publications selected for the evaluation. In each publication authors, reference data, title, journal IF, and citations are reported.

- 1) L. Caprini* 1 , H. Löwen. Physical Review Letters 130, 148202, 2023.
Title: “Flocking without Alignment Interactions in Attractive Active Brownian Particles”.
Citations: 0 (scopus), 4 (scholar).
Journal Impact factor: 9.185 (IF-2021)
- 2) L. Caprini*, A.R. Sprenger, R. Wittmann, H. Löwen. The Journal of Chemical Physics 156 (7), 071102, 2022.
Title: “The parental active model: A unifying stochastic description of self-propulsion.”
Citations: 15 (scopus), 23 (scholar).
Journal Impact factor: 4.304 (IF-2021)
- 3) L. Caprini*, U. Marini Bettolo Marconi. The Journal of Chemical Physics 154 (2), 024902, 2021.
Title: “Inertial self-propelled particles”.
Citations: 46 (scopus). 57 (scholar)
Journal Impact factor: 4.304 (IF-2021)
- 4) L. Caprini*. Journal of Statistical Mechanics: Theory and Experiment 2021 (6), 063202, 2021.
Title: “Generalized fluctuation–dissipation relations holding in non-equilibrium dynamics.”
Citations: 11 (scopus). 11 (scholar).
Journal Impact factor: 2.234 (IF-2021)
- 5) L. Caprini*, U. Marini Bettolo Marconi, A. Puglisi. Physical Review Letter 124 (7), 078001, 2020.
Title: “Spontaneous velocity alignment in Motility-induced Phase Separation”.
Citations: 97 (scopus), 133 (scholar).
Journal Impact factor: 9.161 (IF-2020)
- 6) L. Caprini*, C. Maggi, U. Marini Bettolo Marconi, M. Paoluzzi, A. Puglisi. Physical Review Research 2 (2), 023321, 2020.
Title: “Hidden velocity ordering in dense suspensions of self-propelled disks”.
Citations: 43 (scopus) 70 (scholar).
- 7) L. Caprini*, U. Marini Bettolo Marconi. Physical Review Research 2 (3), 033518, 2020.
Title: “Time-dependent properties of interacting active matter: dynamical behavior of one-dimensional systems of self-propelled particles.”
Citations: 24 (scopus), 29 (scholar)
- 8) L. Caprini*, U. Marini Bettolo Marconi, A. Puglisi, A. Vulpiani. Journal of Statistical Mechanics: Theory and Experiment 2019 (5), 053203, 2019. “The Entropy Production of Ornstein-Uhlenbeck
Title: “Active Particles: a path integral method for correlations.”

- Citations: 50 (scopus), 78 (scholar).
Journal Impact factor: 2.215 (IF-2019)
- 9) L. Caprini*, U. Marini Bettolo Marconi, A. Puglisi, A. Vulpiani. *The Journal of Chemical Physics*, 150 (2) 024902 2, 2019.
Title: “Active escape dynamics: the effect of persistence on barrier crossing.”
Citations: 44 (scopus), 51 (scholar).
Journal Impact factor: 2.991 (IF-2019)
- 10) L. Caprini*, U. Marini Bettolo Marconi, A. Puglisi. *Scientific Reports* 9, 1386, 2019.
Title: “Activity induced delocalization and freezing in self-propelled systems”.
Citations: 28 (scopus), 38 (scholar).
Journal Impact factor: 3.998 (IF-2019)
- 11) L. Caprini*, U. Marini Bettolo Marconi, A. Vulpiani. *Journal of Statistical Mechanics: Theory and Experiment* 2018 (3), 033203, 2018.
Title: “Linear response and correlation of a self-propelled particle in the presence of external fields”.
Citations: 39 (scopus), 50 (scholar).
Journal Impact factor: 2.371 (IF-2018)
- 12) L. Caprini, U. Marini Bettolo Marconi*. *Soft Matter*, 2018,14, 9044-9054, 2018.
Title: “Active particles under confinement and effective force generation among surfaces”.
Citations: 61 (scopus) 74 (scholar).
Journal Impact factor: 3.399 (IF-2018)

Other publications in peer reviewed journals:

- 13) A.R. Sprenger, L. Caprini, H. Löwen, R. Wittmann, *Journal of Physics: Condensed Matter* 35, 305101, 2023.
Title: “Dynamics of active particles with translational and rotational inertia.”
Citations: 0 (scopus), 0 (scholar).
Journal Impact factor: 2.234 (IF-2021)
- 14) B. Nath, L. Caprini, C. Maggi, A. Zizzari, V. Arima, I. Viola, R. Di Leonardo, A. Puglisi, *Lab on a Chip* 23 (4), 773-784, 2023.
Title: “A microfluidic method for passive trapping of sperms in microstructures.”
Citations: 0 (scopus), 0 (scholar).
Journal Impact factor: 7.517 (IF-2021)
- 15) I. Buttinoni, L. Caprini, L. Alvarez, F.J. Schwarzendahl, H. Löwen, *Europhysics Letters* 140 (2), 27001, 2022.
Title: “Active colloids in harmonic optical potentials.”
Citations: 1 (scopus), 4 (scholar).
Journal Impact factor: 1.958 (IF-2021)
- 16) L. Caprini, U. Marini Bettolo Marconi, R. Wittmann, H. Löwen, *SciPost Physics* 13 (3), 065, 2022,
Title: “Active particles driven by competing spatially dependent self-propulsion and external force.”
Citations: 3 (scopus), 5 (scholar).
Journal Impact factor: 6.554 (IF-2021)
- 17) L. Caprini, R.K. Gupta, H. Löwen, *Physical Chemistry Chemical Physics* 24 (40), 24910-24916, 2022.
Title: “Role of rotational inertia for collective phenomena in active matter.”
Citations: 5 (scopus), 8 (scholar).
Journal Impact factor: 3.945 (IF-2021)

- 18) L. Caprini, U. Marini Bettolo Marconi, R. Wittmann, H. Löwen, *Soft Matter* 18 (7), 1412-1422 , 2022.
Title: “Dynamics of active particles with space-dependent swim velocity.”
Citations: 12 (scopus), 16 (scholar).
Journal Impact factor: 4.046 (IF-2021)
- 19) M. Baldovin, L. Caprini, A. Puglisi, A. Sarracino, A. Vulpiani, “Nonequilibrium Thermodynamics and Fluctuation Kinetics: Modern Trends and Open Questions, Springer International Publishing, 2022, The Many Faces of Fluctuation-Dissipation Relations Out of Equilibrium.”
Citations: 0 (scopus), 0 (scholar).
- 20) L. Caprini, F. Cecconi, U. Marini Bettolo Marconi, *The Journal of Chemical Physics* 155 (23), 234902, 2021.
Title: “Correlated escape of active particles across a potential barrier.”
Citations: 12 (scopus), 15 (scholar).
Journal Impact factor: 4.304 (IF-2021)
- 21) P. Bilotto, L. Caprini, A. Vulpiani, *Physical Review E* 104, 024140, 2021.
Title: “Excess and loss of entropy production for different levels of coarse-graining.”
Citations: 2 (scopus), 5 (scholar).
Journal Impact factor: 2.707 (IF-2021)
- 22) M. Baldovin, L. Caprini, A. Vulpiani, *Physical Review E* 104, L032101 , 2021.
Title: “A handy fluctuation-dissipation relation to approach generic noisy systems and chaotic dynamics.”
Citations: 2 (scopus), 2 (scholar).
Journal Impact factor: 2.707 (IF-2021)
- 23) U. Marini Bettolo Marconi, A. Puglisi, L. Caprini, *New Journal of Physics*, 2021.
Title: “Hydrodynamics of simple active liquids: the emergence of velocity correlations.”
Citations: 10 (scopus), 14 (scholar).
Journal Impact factor: 3.716 (IF-2021)
- 24) L. Caprini, C. Maggi, U. Marini Bettolo Marconi, *The Journal of Chemical Physics* 154 (24), 244901, 2021.
Title: “Collective effects in confined Active Brownian Particles.”
Citations: 10 (scopus), 13 (scholar).
Journal Impact factor: 4.304 (IF-2021)
- 25) L. Caprini, U. Marini Bettolo Marconi, *Soft Matter* 17 (15), 4109-4121, 2021.
Title: “Spatial velocity correlations in inertial systems of active Brownian particles.”
Citations: 31 (scopus), 37 (scholar).
Journal Impact factor: 4.046 (IF-2021)
- 26) L. Caprini, A. Puglisi, A. Sarracino , *Symmetry* 13 (1), 81, 2021.
Title: “Fluctuation-Dissipation Relations in Active Matter Systems.”
Citations: 20 (scopus), 26 (scholar).
Journal Impact factor: 2.94 (IF-2021)
- 27) L. Caprini, F. Cecconi, C. Maggi, U. Marini Bettolo Marconi, *Physical Review Research* 2 (4), 043359, 2020,
Title: “Activity-controlled clogging and unclogging of micro-channels.”
Citations: 11 (scopus), 11 (scholar).
- 28) L. Caprini, U. Marini Bettolo Marconi, *The Journal of Chemical Physics*, 153 (18), 184901, 2020.
Title: “Active Matter at high density: Velocity distribution and kinetic temperature.”
Citations: 16 (scopus), 19 (scholar).
Journal Impact factor: 3.488 (IF-2020)
- 29) L. Caprini, F. Cecconi, A. Puglisi, A. Sarracino , *Soft Matter* 16, 5431-543, 2020.

Title: “Diffusion properties of self-propelled particles in cellular flows.”

Citations: 9 (scopus), 14 (scholar).

Journal Impact factor: 3.679 (IF-2020)

- 30) L. Natali, L. Caprini, F. Cecconi, *Soft Matter* 16 (10), 2594-2604, 2020.
Title: “How a local active force modifies the structural properties of polymers.”
Citations: 5 (scopus), 6 (scholar).
Journal Impact factor: 3.679 (IF-2020)
- 31) L. Caprini, E. Hernandez-Garcia, C. Lopez, U. Marini Bettolo Marconi, *Scientific Reports* (9), 16687, 2019.
Title: “A comparison between two models for active cluster-crystals.”
Citations: 18 (scopus), 41 (scholar).
Journal Impact factor: 3.998 (IF-2019)
- 32) M. Baldovin, L. Caprini, A. Vulpiani, *Physica A: Statistical Mechanics and its Applications*, 524, 422-429, 2019.
Title: “Irreversibility and typicality: A simple analytical result for the Ehrenfest model.”
Citations: 8 (scopus), 12 (scholar).
Journal Impact factor: 2.924 (IF-2019)
- 33) L. Caprini, F. Cecconi, U. Marini Bettolo Marconi, *The Journal of Chemical Physics*, 150, 144903, 2019.
Title: “Transport of an active particle in an open-wedge channel.”
Citations: 20 (scopus), 22 (scholar).
Journal Impact factor: 2.991 (IF-2019)
- 34) L. Caprini, U. Marini Bettolo Marconi, *Soft Matter* 15 (12), 2627-2637, 2019.
Title: “Active chiral particles under confinement: surface currents and bulk accumulation phenomena.”
Citations: 39 (scopus), 47 (scholar).
Journal Impact factor: 3.140 (IF-2019)
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