

Paolo Rissone

WORK EXPERIENCE

Postdoctoral Researcher

Sapienza Univeristy of Rome [01/04/2024 – Current]

Address: Piazzale Aldo Moro 5 Department of Physics, 00185 Rome (Italy)

Adjunct Professor

University of Barcelona [10/2018 – 02/2022]

City: Barcelona | Country: Spain

Laboratory of Mechanics, Faculty of Physics, Bachelor Degree in Physics.

Tutor Bachelor Degree Thesis

Universidad de Barcelona [03/2019 – 06/2019]

City: Barcelona | Country: Spain

Tesis: Conformational Dynamics in a Multi-State Molecular Free-Energy Landscape | Estudiante: Nil Mont Geli.
Advisor: Maria Mañosas

Research associate in university

Small Byosistems Lab, University of Barcelona [01/2018 – 03/2018]

City: Barcelona | Country: Spain

EDUCATION AND TRAINING

Ph.D. in Physics

University of Barcelona [2018 – 2023]

Address: Carrer de Martí i Franquès, 1-11, 08028 Barcelona (Spain) | Website: <http://ffn.ub.es/ritort/> | Field(s) of study: Natural sciences, mathematics and statistics: • Physics • Statistics • Biology | Final grade: Cum Laude | Level in EQF: EQF level 8 | Thesis: Thermodynamics and Kinetics of Nucleic Acids Folding

Master Degree in Physics

"La Sapienza" University of Roma [2015 – 2017]

City: Roma | Country: Italy | Final grade: 110/110 Cum Laude | Level in EQF: EQF level 7 | Thesis: Forces Correlation in Jammed Hard Spheres

Licenciado con una nota media final de 110/110 cum Laude

Bachelor Degree in Physics

"La Sapienza" University of Roma [2011 – 2015]

City: Roma | Country: Italy | Field(s) of study: Natural sciences, mathematics and statistics: • Physics | Final grade: 102/110 | Level in EQF: EQF level 6 | Thesis: Berry's Phase

Licenciado con una nota media final de 102/110

Classical High-School Diploma

Liceo Classico "E. Q. Visconti" [2007 – 2011]

City: Roma | Country: Italy | Field(s) of study: Education | Final grade: 96/100 | Level in EQF: EQF level 4

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

French

LISTENING A2 READING A2 WRITING A1

SPOKEN PRODUCTION A2 SPOKEN INTERACTION A2

Spanish

LISTENING C2 READING C2 WRITING C2

SPOKEN PRODUCTION C2 SPOKEN INTERACTION C2

Catalan

LISTENING C1 READING C1 WRITING A1

SPOKEN PRODUCTION A1 SPOKEN INTERACTION A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Python / Matlab/Simulink / C / C++ / C+ / Bash - Shell / Microsoft Office (Outlook, Excel, Word, PowerPoint)

HONOURS AND AWARDS

[01/2022] Spanish Biophysical Society, Madrid, Spain

Paper of the Month: "Stem-loop formation drives RNA folding in mechanical unzipping experiments"

[07/2021] American Physical Society, New York, US.

Editors' Suggestion: "Long-range anomalous decay of the correlation in jammed packings"

[11/2021] "Angelo della Riccia" Foundation, Florence, Italy

Scholarship

[11/2020] "Angelo della Riccia" Foundation, Florence, Italy

Scholarship

[11/2019] "Angelo della Riccia" Foundation, Florence, Italy

Scholarship

[07/2017] "La Sapienza" University of Rome, Rome, Italy

Percorso di Eccellenza

PUBLICATIONS

DNA calorimetric force spectroscopy at single base pair resolution

P. Rissone, M. Rico-Pasto, S. Smith, and F. Ritort, *Nature Communications* 16 (1), 2688, 2025.

Humanity's Last Exam

L. Phan, A. Gatti, Z. Han, N. Li, J. Hu, et al., arXiv preprint arXiv:2501.14249, 2025.

Universal cold RNA phase transitions

P. Rissone, A. Severino, I. Pastor, and F. Ritort, *Proc. Natl. Acad. Sci. U.S.A.*, vol. 121, no. 34, e2408313121, 2024.

Experimental test of Sinai's model in DNA unzipping

C. Ter Burg, P. Rissone, M. Rico-Pasto, F. Ritort, and K. J. Wiese, *Phys. Rev. Lett.*, vol. 130, no. 20, p. 208401, 2023.

Nucleic acid thermodynamics derived from mechanical unzipping experiments

P. Rissone, I. Pastor, and F. Ritort, *RNA structure and function* (J. Barciszewski, ed.), pp. 73-91, Springer, 2023.

Thermodynamics and Kinetics of Nucleic Acids Folding

P. Rissone, Universitat de Barcelona, 2023.

Nucleic acid thermodynamics derived from mechanical unzipping experiments

P. Rissone and F. Ritort, *Life*, vol. 12, no. 7, p. 1089, 2022.

Stem-loop formation drives rna folding in mechanical unzipping experiments

P. Rissone, C. V. Bizarro, and F. Ritort, *Proc. Natl. Acad. Sci. U.S.A.*, vol. 119, no. 3, 2022.

Long-range anomalous decay of the correlation in jammed packings

P. Rissone, E. I. Corwin, and G. Parisi, *Phys. Rev. Lett.*, vol. 127, no. 3, p. 038001, 2021.

Efficient methods for determining folding free energies in single-molecule pulling experiments

A. Severino, P. Rissone, A. M. Monge and F. Ritort, *Journal of Statistical Mechanics: Theory and Experiments*, 2019.

SEMINARS & CONFERENCES

2nd Italian Center Super Computing Spoke6 Workshop, Super- computing ICSC, Pisa, Italy

Speaker. February 2025

RNA Phase Transitions in the Cold: Toward Ergodicity Breaking, Center for the Physics of Biological Function, Princeton, NJ, US.

Seminar. December 2024

Single-Molecule Sensors and nanoSystems International Conference, PremC, Barcelona, Spain.

Speaker. November 2023

2nd Biology for Physics Conference - Biological evolution and nonequilibrium physics: close encounters, European Physical Society, Barcelona, Spain.

Poster presentation. July 2022

Physical Review Journal Club: Live discussions with authors

Giorgio Parisi and team discuss the configuration of jammed packings, American Physical Society. March 2022

7th International Iberian Biophysics Congress, Sociedad de Biofisica de Espagna y Portugal, Coimbra, Portugal.

Poster Presentation. June 2021

40 Years of Replica Symmetry Breaking, Università di Roma "La Sapienza", Rome, Italy

Poster Presentation. September 2019

UBics Day, University of Barcelona, Barcelona, Spain

Poster Presentation. June 2019

6th International Iberian Biophysics Congress and X Iberoamerican Congress of Biophysics, Sociedad de Biofisica de España, Castellón, Spain

Poster Presentation. June 2018