



# Andrea Zingarofalo

## Curriculum Vitae et Studiorum

### Personal Details

Name Andrea Zingarofalo  
Birth date November, 11, 2001  
Address 16, Avenue É. Baudot, 91120, Palaiseau, France  
Phone (+39) 327 615 4487  
Email [andrea.zingarofalo@gmail.com](mailto:andrea.zingarofalo@gmail.com), [andrea.zingarofalo@protonmail.com](mailto:andrea.zingarofalo@protonmail.com)  
Nationality Italian

### Education

2020–2025 **Allievo del corso ordinario**, *Advanced School ISUFI* (Interdisciplinary School for Higher Education, Excellence Program)  
~ 10% Acceptance rate for the Natural Sciences Class in 2020.  
Key modules: Group Theory and Symmetries, Celestial Mechanics, Applied Physics I-II, Philosophy of Science, ICT for Research, Public Speaking, Scientific Writing.

Sept 2024 – Jan 2025 **Erasmus program**, *École normale supérieure*, Master ICFP (International Center for Fundamental Physics) M2, Theoretical Physics Track  
Modules: Advanced General Relativity, Quantum Field Theory, Statistical Field Theory, Algorithms and Computations.

2023–2025 **Master of Science in Theoretical Physics**, *University of Salento*, Current GPA: 29.7/30.  
Key modules: Theoretical Particle Physics, QCD, Statistical Mechanics, Theoretical Physics of Matter, Quantum Information and Computing, Physics of Complex Systems, Data Analysis, Mathematical Methods for AI.

2020–2023 **Bachelor of Science in Physics**, *University of Salento*, 110/110 cum laude, GPA: 30/30  
Electives: Nuclear Physics, Astronomy and Astrophysics, Foundations of Physics.  
Dissertation: *Study of one-dimensional quantum integrable systems through the Bethe Ansatz techniques*. Advisor: Prof. L. Martina

2015–2020 **High School Diploma**, *Liceo Scientifico V. Lilla*, 100/100 cum laude, Oria (BR)  
Activities: student ambassador

### Experience

March - July 2025 **Research Intern**, *Institut de Physique Théorique*, CEA Paris-Saclay, working on the geometry of quantum correlations and quantum statistics in the Quantum Information Theory group. Supervisor: Prof. J.-D. Bancal

March - July 2024 **Research Intern**, *University of Salento*, working on integrability of nonlinear PDEs in the Mathematical Physics group, in collaboration with the University of Glasgow. Supervisor: Prof. L. Martina

2019–2025 **Private Tutor** in Mathematics, Physics, and Chemistry for high school and university students

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## Publications

### Journal Articles

- [1] F. Giglio, G. Landolfi, L. Martina, and A. Zingarofalo. Integrability properties and multi-kink solutions of a generalised Fokker-Planck equation. *Journal of Physics A: Mathematical and Theoretical*, 58(16):165202, April 2025.

### Communication and Outreach

- [2] A. Zingarofalo. Il conflitto tra meccanica quantistica e senso comune. [https://www.treccani.it/magazine/chiasmo/scienze\\_naturali\\_e\\_tecnologia/54-conflitto/conflitto\\_zingarofalo\\_ISUFI.html](https://www.treccani.it/magazine/chiasmo/scienze_naturali_e_tecnologia/54-conflitto/conflitto_zingarofalo_ISUFI.html), 2024. Published on Il Chiasmo by Treccani, the Italian Encyclopaedia Institute.
- [3] A. Zingarofalo. Il ruolo delle simmetrie nel problema di Keplero. In D. Avaro and F. Decataldo, editors, *Rete di Idee, Udine 2022*, pages 41–50, Udine, 2023. Forum Editrice.

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## Schools and Training

- 2025 **Qiskit Global Summer School**, organized by IBM, 7-22 July
- 2025 **Summer School on *Mathematical Aspects of Quantum Information* (MAQI)**, organized by Université Paris-Saclay and Institut Polytechnique de Paris, Paris, 16-20 June
- 2024 **Summer School on *Theoretical Physics of Fundamental Interactions***, organized by Scuola Normale Superiore and Scuola Galileiana di Studi Superiori, Pisa, 27-31 May
- 2023 **Winter School on *Green and Digital Transition in Europe***, organized by ENCATC, Bruxelles, 2-7 Dec
- 2019 **School on Modern Physics**, organized by the University of Salento, Lecce, 2-6 Sep
- 2019 **University Orientation School**, organized by Scuola Normale Superiore di Pisa and Accademia Nazionale dei Lincei, Rome, 8-13 Jul
- 2018 **International Cosmic Day Masterclass**, organized by INFN (Italian Institute of Nuclear Physics) and the University of Salento, Lecce, 29 Nov
- 2018 **Stage at Astrophysical Observatory of Asiago**, organized by INAF (Italian Institute of Astrophysics) and the University of Padua, Asiago, 9-13 Jul
- 2016 **Summer School on Astronomy**, organized by INAF/Astronomical Observatory of Capodimonte and SAI (Italian Astronomical Society), Sant'Agata sui Due Golfi, 5-8 Jul

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## Awards and Scholarships

- 2024-2025 Winner of a Scholarship at Cité Internationale Universitaire de Paris
- 2022 Winner of RIASSISU *Rete di Idee*, X edition, Udine
- 2020-2025 Winner of the ISUFI Merit Scholarship at University of Salento, covering accomodation and a salary
- 2018 Senior finalist at XVI Italian Astronomy Olympiads
- 2016-2020 Participant at Astronomy, Mathematics, and Physics Olympiads

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## Talks and Posters

- 2025 **Orthogonal Faces in the CHSH Scenario** (poster), MAQI Summer School, Paris, 18 June
- 2025 **Exploring the Boundaries of Quantum Correlations** (talk), *IPhT Quantum Meetings*, Institut de Physique Théorique, CEA Paris-Saclay, Paris, 6 June

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## Technical Skills

### Programming and Scientific Computing

Programming	Bash, C, C++, Python
Computing	Mathematica, MATLAB, NumPy, SciPy, Matplotlib
Data Analysis	ROOT framework for data analysis, <b>pandas</b> , <b>uncertainties</b> , basic knowledge of machine learning and neural networks using <b>scikit-learn</b> and <b>TensorFlow</b>
Quantum Libraries	<b>Qiskit</b> and <b>PennyLane</b> for quantum computing simulations; experience with SDP programming and quantum optimization workflows using <b>CVXPY</b> , <b>MOSEK</b> , and <b>ncpol2sdpa</b> .
Tools	L <sup>A</sup> T <sub>E</sub> X, Markdown, <b>git</b> , Microsoft Office Suite, Inkscape
Systems	Basic experience with UNIX-based systems, shell scripting, and system management.

### Communication and Teamwork

Excellent interpersonal and communication skills, demonstrated through frequent collaboration with peers and presentation of technical work to diverse audiences.

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## Languages

Italian	Mother tongue
English	C1, Full professional proficiency
French	B2, Limited working proficiency
German	A2, Elementary proficiency

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## Memberships and Affiliations

Since 2023	Member of the SIF - <i>Società Italiana di Fisica</i> (Italian Physical Society).
Since 2020	Member of RIASISSU - <i>Rete Italiana degli Allievi delle Scuole Superiori Universitarie</i> (Italian Network of Students from Excellence Schools).

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## Additional Information

Music	Guitar Grade 2 passed with Distinction, Graded Examination of Music Performance, Trinity College of London.
Personal Interests	Amateur Astronomer, Speaker at <i>XXXVII Meeting Regionale degli Astrofili Pugliesi</i> . Participant in various astronomy stages organized by INAF (Italian Institute of Astrophysics), and SAIIt (Italian Astronomical Society).
Driving Licenses	AM, B