Marco Panero

Curriculum Vitæ

Present position

01.2025 – 12.2025	Academic leave at the University of Helsinki, Finland
11.2014 – present	**Associate Professor**, Department of Physics, University of Turin, Italy

Appointments, qualifications and education

07.2018 – 07.2029	Italian National Academic Qualification as Full Professor (ASN 02/A2)
03.2017 – 02.2022	Affiliate member of the Arnold-Regge Center, Turin
03.2016 – present	Scientific association as Research Scientist for INFN (Italian Nuclear Physics Institute), Turin
01.2014	French National Academic Qualification as Lecturer/Associate Professor
01.2014	Italian National Academic Qualification as Associate Professor (ASN 02/A2)
10.2013 – 10.2014	Severo Ochoa Excellence fellow, Autonomous University of Madrid, Spain
10.2010 – 09.2013	Postdoctoral researcher, University of Helsinki, Finland
10.2008 – 09.2010	Postdoctoral researcher, ETH Zürich, Switzerland
01.2007 – 09.2008	Alexander von Humboldt fellow, University of Regensburg, Germany
11.2003 – 11.2006	Postdoctoral researcher, Dublin Institute for Advanced Studies, Ireland
10.2003	Ph.D. in Physics, University of Turin, Italy
07.2000	M.Sc. in Physics, first class honours, University of Turin, Italy

Scientific research

- Main research areas: Fundamental interactions and fields (PE2_1), Particle physics (PE2_2), Nuclear physics (PE2_3), Statistical physics (PE3_15)
- Principal Investigator for the CINECA INFN_SFT high-performance computing initiative (01.2017 – present)
- Scientific production summary: 110 publications (including 1 academic textbook and 53 articles

Department of Physics, University of Turin • Via Pietro Giuria 1, I-10125 Turin, Italy
☎ +39 011 670 7218 • FAX +39 011 670 7214
✉ marco.panero@unito.it
https://www.physics.unito.it/do/docenti.pl/Show?_id=marpaner

in peer-reviewed journals). ORCID: 0000-0001-9477-3749

Scientific talks

- Selected invited plenary talks at conferences:
  - ALICE Muon Meeting 2017 (Monsummano Terme, Italy), 05.2017: *Lattice QCD predictions for heavy-ion collisions*
  - Lattice 2012, The XXX International Symposium on Lattice Field Theory (Cairns, Australia), 06.2012: *Recent results in large-N lattice gauge theories*
  - Extreme QCD 2010 (Bad Honnef, Germany), 06.2010: *Large-N thermodynamics*
- Invited research seminars:
  - Approximately 70 invited research seminars at international Universities and Research Institutes

Teaching

- Courses taught:
  - *Introduction to group theory* [MFN0888] for M.Sc. students (2022 – present; 48 hours)
  - *Applied physics* module of *Functioning of the human body* [MED3032] for Nursing Sciences B.Sc. students (2015 – present; 30 hours)
  - *Statistical field theory on the lattice* [FIS0267] for Ph.D. students (2024; 24 hours)
  - *High temperatures* module of *Nuclear physics at low and high temperatures* [FIS0202] for M.Sc. students (2022 – present; 24 hours)
  - *Physics II* [MFN1247] for Mathematics B.Sc. students (2015 – present; 18 hours)
  - *Introduction to the large-N limit* [FIS0077] for Ph.D. students (2017, 2019 – 2022; 20 hours)
  - *Complements of mathematical methods for physics* [MFN0779] for M.Sc. students (2015 – 2021; 48 hours)
  - *Introduction to lattice field theory* [FIS0090] for Ph.D. students (2015, 2018; 20 hours)
  - *Mathematical Methods of Physics III* for M.Sc. students (University of Helsinki, Finland, 2011; 30 hours)
  - *Introduction to Lattice QCD* for Ph.D. students (International Graduate School Bielefeld – Paris – Helsinki, GRK 881 and PACO, University of Helsinki, Finland, 2010; 6 hours)
  - Tutor for the *Supersymmetry* course for M.Sc. students (ETH Zürich, Switzerland, 2009; 30 hours)
  - Tutor for the *Advanced Quantum Field Theory* course for M.Sc. students (ETH Zürich, Switzerland, 2008; 30 hours)
  - Tutor for the *Physics II* course for Mathematics B.Sc. students (University of Turin, 2003; 30 hours)
  - Tutor for the *Physics I* course for Mathematics B.Sc. students (University of Turin, 2002; 30 hours)

Theses supervised

27. Antonio Smecca, Ph.D. 2023: *Inclusive semileptonic decays of heavy mesons and other challenging problems in lattice QCD*

26. Marco Aliberti, M.Sc. 2023: *Quantum field theory on a highly symmetric lattice*

25. Paolo Garbarino, M.Sc. 2023: *Inclusive semileptonic decays of heavy mesons*

24. Antonino D'Anna, M.Sc. 2023: *Multiple scales on the lattice*

23. Andrea Bulgarelli, M.Sc. 2022: *Entanglement entropy from non-equilibrium Monte Carlo calculations*

22. Andrea Stampiggi, M.Sc. 2022: *Form factors in the thermally deformed three-state bi-dimensional tricritical Potts model*

21. Niccolò Forzano, University of Milano-Bicocca, M.Sc. 2022: $\mathrm{Sp}(2N)$ *gauge theories at high temperature* (co-supervisor)

20. Vittorio Larotonda, B.Sc. 2021: *Derivazione delle equazioni complete dell'idrodinamica viscosa al secondo ordine dalla teoria cinetica* ("Derivation of the complete equations of relativistic hydrodynamics at second order from kinetic theory")

19. Fabrizio Caristo, M.Sc. 2021: *Study of the interquark potential at high temperature with lattice simulations* (co-supervisor)

18. Luca Ferrero, B.Sc. 2021: *Derivazione dell'idrodinamica relativistica dalla teoria cinetica* ("Derivation of relativistic hydrodynamics from kinetic theory")

17. Paola Giovannetti, M.Sc. 2020: *Grand-canonical simulations of two dimensional systems*

16. Emanuele Di Salvo, M.Sc. 2020: *Lee-Yang zeros in quantum field theory*

15. Pietro Butti, M.Sc. 2019: *Effective theories for relativistic fields at high temperature*

14. Matteo Favoni, M.Sc. 2019: *Duality transformation for scalar field theory on the lattice*

13. Leonardo Chimirri, M.Sc. 2018: *Renormalization of tensor currents from lattice QCD*

12. Emanuele Maunero, M.Sc. 2018: *Lattice study of the entanglement entropy in Yang-Mills theory*

11. Paolo Stornati, M.Sc. 2018: *Deconfinement phase transition in lattice quantum chromodynamics with very large quark masses*

10. Alessandro Nada, Ph.D. 2018: *Precision thermodynamics in non-Abelian gauge theories with non-equilibrium methods* (co-supervisor)

9. Giulia Mercuri, B.Sc. 2017: *Aspetti caratterizzanti della fisica quantistica e l'origine quantistica dei fenomeni classici* ("Characterizing aspects of quantum physics and the quantum origin of classical phenomena")

8. Olmo Francesconi, M.Sc. 2016: *Running coupling in Yang-Mills theory from the Schrödinger functional*

7. Fabio Minniti, B.Sc. 2016: *Fondamenti della teoria delle matrici random e applicazioni in fisica* ("Foundations of random matrix theory and applications in physics")

6. Carla Marchis, M.Sc. 2015: *The $O(1/m^2)$ heavy quark-antiquark potential at finite temperature* (co-supervisor)

5. Simone Bacchio, M.Sc. 2015: *The quark mass dependence in the quark-antiquark potential* (co-supervisor)

4. Arianna Toniato, M.Sc. 2015: *A study of interfaces in the three-dimensional Ising model* (co-supervisor)

3. Davide Vadacchino, M.Sc. 2012: *A numerical study of lattice QED in 2+1 dimensions* (co-supervisor)

2. Stefano Piemonte, M.Sc. 2011: *Termodinamica delle teorie di gauge su reticolo* ("Thermodynamics of lattice gauge theories") (co-supervisor)

1. Luca Castagnini, M.Sc. 2009: *Thermodynamics of* $\mathrm{SU}(N)$ *gauge theories in 2+1 dimensions* (co-supervisor)

Internal administrative responsibilities

- Member of the Physics Ph.D. Programme Board, University of Turin (03.2019 – present)
- Member of the Physics Department Research Board, University of Turin (11.2015 – 09.2024)

Service for the community

- Conferences organized:
  7. "Turin Lattice Meeting 2023" workshop (Turin, Italy, 21.–22.12.2023)
  6. "Phase transitions in particle physics" workshop of the STRONG-2020 network (Arcetri, Italy, 28.03.–01.04.2022)
  5. "Quantum Gravity meets Lattice QFT" workshop (Trento, Italy, 03.–07.09.2018)
  4. "New Frontiers in Theoretical Physics", the XXXVI Italian theoretical physics meeting (Cortona, Italy, 23.–26.05.2018)
  3. "eNLarge Horizons" workshop (Madrid, Spain, 18.05.–05.06.2015)
  2. "Turin Lattice Meeting 2014" workshop (Turin, Italy, 22.–23.12.2014)
  1. "HoloGrav 2013" workshop of the European Science Foundation (Helsinki, Finland, 04.–08.03.2013)
- Scientific convener at conferences:
  2. "Future Prospects" session of the II Italian Meeting on Physics with Heavy Ions at LHC (Turin, Italy, 09.–10.10.2017)
  1. "Non-perturbative Quantum Field Theory and String Theory" session at the European Physics Society High Energy Physics 2013 conference (Stockholm, Sweden, 18.–24.07.2013)
- Chair of the Selection Panel for a type-B University Researcher position, University of Pisa, Italy (2022)
- Member of the Selection Panel for a type-A University Researcher position, University of Pisa, Italy (2018)
- External examiner for Ph.D. theses:
  6. J. L. Dasilva Golan, Autonomous University of Madrid, Spain, 09.2023 (thesis supervisor: M. García Pérez)
  5. S. Singh, University of Parma, Italy, 10.2022 (thesis supervisor: F. Di Renzo)
  4. M. Cardinali, University of Pisa, Italy, 02.2022 (thesis supervisor: M. D'Elia)

3. J. Holligan, Swansea University, United Kingdom, 09.2021 (thesis supervisors: B. Lucini and M. Piai)
2. C. Marchis, University of Graz, Austria, 08.2018 (thesis supervisor: C. Gattringer)
1. F. Cuteri, University of Calabria, Italy, 02.2016 (thesis supervisor: A. Papa)

- Internal examiner for Ph.D. theses:

2. M. Motta, University of Turin, Italy, 05.2021 (thesis supervisor: W. M. Alberico; thesis co-supervisor: A. Beraudo)
1. D. Vadacchino, University of Turin, Italy, 09.2016 (thesis supervisor: M. Caselle)

- Application reviewer for:

10. Italian "Rita Levi Montalcini" Program for Young Researchers (since 11.2023)
9. Italian SuperComputing Resource Allocation Interdisciplinary Laboratory for Advanced Simulation initiatives of the CINECA supercomputing center, Italy (since 10.2022)
8. Royal Society, United Kingdom (since 01.2022)
7. Israel Science Foundation (since 03.2021)
6. DiRAC HPC of the Science and Technology Facilities Council, United Kingdom (since 11.2019)
5. Dutch Research Council (since 08.2019)
4. Italian National Agency for the Evaluation of the University System and of the Research Quality (since 07.2016)
3. Partnership for Advanced Computing in Europe "PRACE" & EuroHPC, European Union (since 04.2016)
2. LinkSCEEM/Cy-Tera, Cyprus (since 10.2015)
1. US National Science Foundation (since 01.2014)

- Member of the Editorial Board of the International Journal of Modern Physics A (since 02.2021)
- Member of the Editorial Board of Modern Physics Letters A (since 02.2021)
- Guest editor for the International Journal of Modern Physics A (2016)
- Referee for Cambridge University Press (since 08.2024)
- Journal reviewer for:

40. Reports on Progress in Physics (since 06.2024)
39. International Journal of Modern Physics A (since 09.2023)
38. SciPost (since 05.2023)
37. Applied Sciences (since 11.2020)
36. Communications Physics (since 06.2020)
35. Journal of Statistical Mechanics: Theory and Experiment (since 09.2019)
34. Symmetry (since 07.2019)
33. Mathematics (since 04.2019)
32. Annals of Physics (since 09.2018)
31. Advances in High Energy Physics (since 02.2018)
30. Proceedings of the International Conference on Physics, Mathematics and Statistics (since 09.2017)

29. Physical Review X (since 08.2017)
28. Advances in Applied Clifford Algebras (since 01.2017)
27. Universe (since 08.2016)
26. European Physical Journal A (since 06.2016)
25. International Journal of Physical Sciences (since 12.2014)
24. European Physical Journal C (since 09.2014)
23. Entropy (since 08.2014)
22. Nuclear Physics A (since 06.2014)
21. Canadian Journal of Physics (since 11.2013)
20. Physics Letters B (since 10.2013)
19. Journal of High Energy Physics (since 05.2013)
18. Physical Review Letters (since 02.2013)
17. Journal of Physics: Conference Series (since 01.2013)
16. Journal of Physics D: Applied Physics (since 07.2012)
15. Frontiers in Science (since 05.2012)
14. Physical Review D (since 11.2011)
13. Nuclear Physics B (since 10.2011)
12. New Journal of Physics (since 04.2011)
11. International Journal of Modern Physics E (since 02.2011)
10. Physics Letters A (since 07.2010)
9. Journal of Physics G: Nuclear and Particle Physics (since 03.2010)
8. Physica Scripta (since 10.2009)
7. European Journal of Physics (since 04.2009)
6. Journal of Physics: Condensed Matter (since 04.2009)
5. Classical and Quantum Gravity (since 03.2009)
4. Journal of Physics A: Mathematical and Theoretical (since 10.2008)
3. Foundations of Physics (since 08.2008)
2. Symmetry, Integrability and Geometry: Methods and Applications (since 11.2007)
1. Advances in Theoretical and Mathematical Physics (since 11.2007)

- Science popularization and outreach:

10. Invited speaker for a science popularization conference at the "I *clerici vagantes* del XXI secolo" ("The *clerici vagantes* of the XXI century") event in the "Un cocktail di scienze" ("A science cocktail") conference series in Sommariva del Bosco, Italy, on internationalization in higher education and in academic research (07.2024, in Italian)
9. Invited speaker at the VIII Italian Conference of Physics Students "CISF2024" in Turin, Italy, on recent developments in theoretical fundamental physics, and personal experience in academic research (04.2024, in Italian), published online at https://shorturl.at/bvOSt

8. Author of a science popularization article on the anomalous magnetic dipole moment of the muon (04.2021), published online at https://bit.ly/3mrzn74
7. Invited speaker at a science popularization event in Bra, Italy, on the value of scientific culture for society (10.2018, in Italian)
6. Invited speaker for a science popularization lecture at the second-level college of science "Giolitti/Gandino" in Bra, Italy, on science and culture in the contemporary world (10.2018, in Italian)
5. Invited speaker for a science popularization talk in the "A Glass of Physics" event series, organized by A.I.S.F., the Italian Association of Physics Students, in Turin, Italy, on strongly coupled physical systems, from statistical mechanics to elementary particle physics (06.2018, in Italian)
4. Invited speaker for a science popularization lecture at the "Hackmeeting 0x14" in Venaus, Italy, on an introduction to quantum physics (06.2017, in Italian)
3. Invited speaker for a science popularization lecture for high-school students at the "Scuola di Fisica 2017" organized by the University of Turin, Italy, on the fundamental constituents of matter (04.2017, in Italian)
2. Invited speaker for a science popularization lecture, sponsored by Cassa di Risparmio di Bra Foundation, at the second-level college of science "Giolitti/Gandino" in Bra, Italy, on the arrow of time (02.2016, in Italian)
1. Author of a science popularization article on the discovery of the Higgs boson (07.2012, in Italian), published online at http://bit.ly/2p3ynLu

Miscellanea

Languages

Italian	Native speaker
English	Fluent
Finnish	Intermediate
French	Basic
German	Basic

Department of Physics, University of Turin • Via Pietro Giuria 1, I-10125 Turin, Italy
☎ *+39 011 670 7218 •* FAX *+39 011 670 7214*
✉ *marco.panero@unito.it*
https://www.physics.unito.it/do/docenti.pl/Show?_id=marpaner