

CURRICULUM VITAE

Mattia Bruno

Personal information

Birth date and place: 1988, Cuneo, Italy
Nationality: Italian
Languages: Italian, native. English, fluent. French and German, basic
Institution: Università degli Studi di Milano-Bicocca
Physics Dept. “Giuseppe Occhialini”
Address: Piazza della Scienza 3 - 20126 MILANO
Contacts: email: mattia.bruno@unimib.it

Research Career

2024-present: Associate Professor
Physics Dept., Università degli Studi di Milano-Bicocca, Italy
2021-2024: “Rita Levi Montalcini” Fellow (Tenure track)
Physics Dept., Università degli Studi di Milano-Bicocca, Italy
2018-2021: Postdoctoral Fellow
Theoretical Physics Department, CERN, Switzerland.
2015-2018: Research Associate
High Energy Theory Group, Brookhaven National Laboratory, USA.
2012-2015: PhD Student
NIC Research Group, DESY Zeuthen, Germany.

Education

July 2015: **Ph.D. in Theoretical Physics**
NIC Research Group, DESY Zeuthen, Germany.
Humboldt-Universität zu Berlin, Germany, *summa cum laude*.
Thesis: *The energy scale for the 3-flavour Lambda parameter of QCD*. Supervisor: Rainer Sommer.
December 2012: Diploma at Scuola di Studi Superiori
Università degli studi di Torino, Italy.
July 2012: **M.Sc. in Theoretical Physics (Laurea Specialistica)**
Università degli studi di Torino, Italy, *cum laude*.
Thesis: *Thermal properties of non-abelian lattice gauge theories in four dimensions*. Supervisor: Michele Caselle.

Research interests

- Non-perturbative predictions of quantities relevant for physics beyond the Standard Model (e.g. hadronic contributions to the muon anomaly or weak kaon decays)
- Renormalization problems in Quantum Field Theories and Lattice Field Theories
- Developments of formal methods for amplitudes from Lattice simulations
- Algorithms and computational strategies for Lattice QCD

Research output

Papers:	33 citeable papers, with 2447 total citations
Publications:	16 published papers in peer-reviewed journals with 2279 total citations and average of 142 citations per paper
ORCID:	0000-0002-5127-4461
InSpireHEP:	Mattia Bruno

Scholarships, Grants, Computer Allocations

2023-2024:	Principal investigator of the EuroHPC JU Extreme scaling project EHPC-EXT-2022E01-064 on Leonardo Booster for 21M corehours or 662K node hours.
2021-2024:	“Rita Levi Montalcini” Fellowship for the project <i>The muon anomalous magnetic moment to permille accuracy from first principles</i>
2018-2019:	Principal investigator of the USQCD project “Precise scale setting for $(g - 2)_\mu$ ” (16 M core-hours on the KNL cluster at BNL).
2017-2018:	Principal investigator of the USQCD project “Step scaling studies to improve the calculation of electroweak decays”, (3 M core-hours on the pi0 cluster at FNAL).
2016-2017:	Principal investigator of the USQCD project “Step scaling studies to improve the determination of ϵ' ”, (2 M core-hours on the pi0 cluster at FNAL).
2014-2015:	Associate member of the Graduiertenkolleg “Masse Spektrum Symmetrie” (GK1504), Humboldt-Universität zu Berlin.
2010-2012:	Scholarship by Scuola di Studi Superiori, Università degli studi di Torino.

Invited lectures at international schools

Berlin 2023:	Lectures on “Data analysis in Lattice QCD” at the Lattice Practices 2023 school
Benasque 2022:	Lecture on “Lattice QCD at Exascale: challenges and way ahead” at the LatticeNet school on Computing in HEP

Berlin 2021: Lecture on “Scale setting in Lattice QCD” at the Lattice Practices 2021 school

Teaching experiences

2024-2025: Computational Physics (Bachelor, 8 CFU)
2022-2025: Mathematical methods for Physics (6 CFU)
2021-2022: Mathematical methods for Physics (3 CFU)
Phenomenology of the SM and Lattice QCD (2 CFU)

Institutional responsibilities

2022-present: member of the Open Science Working Group for the INFN (Gruppo Lavoro Open Science GLOS)

Service for the community

Organized workshops: Member of the scientific committee for

- *Advances in Lattice Gauge Theories 2019*
CERN TH Institute, Switzerland.
- *Phase transitions in particle physics*
GGI event, Florence, Italy. March 2022.

Journal reviewer for: Physical Review D
Modern Physics Letters A
European Physical Journal C

Software packages: Developer and maintainer of `pyobs` a python library to analyze Lattice QCD Observables. Active contributor/developer of `gpt` and `Grid`.

Milano, February 20, 2025