

Niccolò Laurenti

RESEARCHER IN PARTICLE PHYSICS · SCIENTIFIC SOFTWARE DEVELOPER

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Personal Informations

Birth 1997, Rome, Italy
Citizenship Italian
Languages Italian (native language), English (fluent)

Education

Ph.D. in Physics

UNIVERSITY OF MILAN

Milan, Italy

Oct. 2021 - current

- Field of study: Theoretical Particle Physics, Computational Physics.
- Graduating in fall 2024.

M.S. in Physics

UNIVERSITY OF ROME "LA SAPIENZA"

Rome, Italy

Sep. 2019 - Oct. 2021

- Field of study: Theoretical Particle Physics.
- Grade: 110/110 (cum laude).
- Thesis: *Construction of a next-to-next-to-next-to-leading order approximation for heavy flavour production in deep inelastic scattering with quark masses.*

B.S. in Physics

UNIVERSITY OF ROME "LA SAPIENZA"

Rome, Italy

Sep. 2016 - Nov. 2019

- Grade: 110/110 (cum laude).
- Thesis: *Particle identification with the time of flight method and applications to the CMS experiment.*

Skills

Programming C, C++, Python, Fortran, Bash, Git, Docker
Scientific packages GSL, Numpy, Scipy, Matplotlib, Pandas, Keras, Tensorflow, SQLite
Scientific programs Matlab, Mathematica
Writing Latex, Microsoft Office

Experience

Ph.D. Researcher

RESEARCHER IN THEORETICAL PARTICLE PHYSICS AT THE UNIVERSITY OF MILAN AND INFN

Milan, Italy

Oct. 2021 - current

- Worked under the supervision of Prof. Stefano Forte in the NNPDF collaboration as a developer of the NNPDF code.
- Developed techniques and computational programs applied to particle physics, that utilize artificial intelligence for investigating the internal structure of the proton with high precision using experimental data collected at CERN.
- Published research results in various papers and presented them in conferences.

Undergraduate Researcher

RESEARCHER IN THEORETICAL PARTICLE PHYSICS AT THE UNIVERSITY OF ROME "LA SAPIENZA"

Rome, Italy

Mar. 2021 - Oct. 2021

- Worked under the supervision of Dr. Marco Bonvini and another Master student to develop theoretical methods and computational programs for producing high-precision theoretical predictions in particle physics.
- Focused on describing experimental data collected at the particle accelerator HERA.
- Developed two programs, **Adani** and **DIS_TP**, resulting in a published paper and presentations at conferences.

Publications

- 2024 **The Path to N^3 LO Parton Distributions**, The NNPDF Collaboration, R. D. Ball et al., *Eur. Phys. J. C*
- 2024 **Determinantion of the theory uncertainties from missing higher orders on NNLO parton distributions with percent accuracy**, The NNPDF Collaboration, R. D. Ball et al., *Eur. Phys. J. C*
- 2024 **Photons in the proton: implications for the LHC**, The NNPDF Collaboration, R. D. Ball et al., *Eur. Phys. J. C*
- 2023 **Inclusion of QED corrections in PDFs fits**, N. Laurenti, *Nucl. Part. Phys. Proc.*
- 2022 **Approximating missing higher-orders in transverse momentum distributions using resummations**, N. Laurenti, T. R. Rabemananjara, and R. Stegeman, *Contribution to DIS2022*

Talks

2023	Evidence of intrinsic charm quarks in the proton , Mainz, Germany	MENU23
2023	Including QED corrections in PDF fits: The NNPDF4.0QED PDF set , Durham, UK	QCD@LHC23
2023	Inclusion of QED corrections in PDFs: The NNPDF4.0QED PDF set , Montpellier, France	QCD23
2021	Construction of a third order approximation for heavy flavour production in deep inelastic scattering , Milan, Italy	MCM 2021

Teaching activity

2024	TA for the course of Quantum Physics I , Introduction to Quantum Mechanics	University of Milan
2024	TA for the course of Physics , Basics of Classical Mechanics and Thermodynamics	University of Milan
2024	TA for the course of Quantum Physics II , Advanced course on Quantum Mechanics	University of Milan
2023	TA for the course of Theoretical Physics I , Introduction to Quantum Field Theory	University of Milan
2023	TA for the course of Physics , Basics of Classical Mechanics and Thermodynamics	University of Milan
2023	TA for the course of Quantum Physics II , Advanced course on Quantum Mechanics	University of Milan
2023	Exercise classes for the course of Quantum Physics II , Advanced course on Quantum Mechanics	University of Milan
2022	TA for the course of Quantum Physics I , Introduction to Quantum Mechanics	University of Milan