Lorenzo Mansi

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Professional Summary

Aspiring Quantitative Researcher, soon to complete a Ph.D. in Theoretical and Mathematical Physics, driven by a deep passion for data-driven problem-solving and financial markets. Proficient in Python, Mathematica, and cutting-edge machine learning techniques, leveraging both theoretical rigour and computational efficiency. My experience spans managing multidisciplinary projects, collaborating in high-performance teams, and mentoring colleagues, ensuring seamless collaboration. Always eager to learn and tackle new challenges, I am excited to apply my analytical mindset and coding expertise to solve real-world problems in quantitative finance.

Education

University of Hamburg, *PhD in Theoretical and Mathematical Physics*   Oct 2022 – Sep 2025

- Focus on Geometric Invariant Theory and Combinatorics techniques applied to the study of vacua of supersymmetric theories in various String Theory-engineered models.

Imperial College London, *MSc in Physics*   Oct 2021 – Oct 2022

- Awarded with Distinction, with a Thesis on : "Construction of 6d $\mathcal{N} = (1,0)$ SCFTs and Higgs Branch Hasse Diagram".
- **Coursework:** (Advanced) Quantum Field Theory, Programming Skills, Supersymmetry, Unification, Standard Model & Beyond.
- **Prizes**: "Outstanding Performance in the MSc", for the highest graduating average in my cohort (86.3%).
- Member of the Investment Society, achieved a Security and Education Certificate with Merit.

University of Pisa, *BSc in Physics*   Sep 2018 – Jun 2021

- Grade 110/110 cum Laude, with a Thesis on : "Distribution for products in asymmetric e^+e^- collider: an example in B and L violating τ decay".
- **Coursework:** Programming, Linear Algebra, Mathematical Methods (PDE and Theory of Distributions), Real and Complex Analysis, Quantum Mechanics, Group Theory, Laboratory (Statistics and Probability).
- **Prizes:** "Medaglia del Cherubino", for graduating with the highest grade while being in the top 10% of my cohort in every academic year.

Experience

Graduate Researcher, Deutsches Elektronen SYnchrotron – Hamburg, DE   Oct 2022 – Sep 2025

- IT team volunteer, responsible for maintaining the DESY Theory cluster and addressing help-desk queries.
- Leading innovative research in High Energy Theory, within the String Theory group.
- Mentoring of new PhD students (Guido Bonori) and young researchers.

Publications

A Pathway to Decay and Fission of Orthosymplectic Quiver Theories   Dec 2024

Craig Lawrie, *Lorenzo Mansi*, Marcus Sperling, Zhenghao Zhong

2412.15202

Detecting Homeomorphic 3-manifolds via Graph Neural Networks   Sep 2024

Craig Lawrie, *Lorenzo Mansi*

2409.02126

Higgs branch of 6D (1, 0) SCFTs and little string theories with Dynkin DE-type SUSY enhancement   Jun 2024

Craig Lawrie, *Lorenzo Mansi*

10.1103/PhysRevD.110.066014

Unravelling T-Duality: Magnetic Quivers in Rank-zero Little String Theories   Dec 2023

Lorenzo Mansi, Marcus Sperling

10.1103/PhysRevD.110.126016

Higgs branch of heterotic little string theories: Hasse diagrams and generalized symmetries   Dec 2023

Craig Lawrie, *Lorenzo Mansi*

10.1103/PhysRevD.110.026016

Projects

Bollinger Band Trading   BBHighFrequency

- Interactively benchmark of a Bollinger Bands Trading Strategy on a chosen set of stocks using the arbitragelab package of Hudson-And-Thames.
- Code repository available at BBHighFrequency.
- Tools Used: Python

Plumbed 3-Manifolds   Plumbed 3-Manifolds

- Developed a Graph Neural Network to discern homeomorphic pair of 3-manifolds.
- Tools Used: Python, PyTorch, PyTorch Geometric

Technologies

Certifications: Time Series, Intermediate Machine Learning, Intro to Deep Learning

Languages: Python, Mathematica, C++

Technologies: LaTeX