Lorenzo Mansi

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Personal Website: lollo0900.github.io , : GitHub , : iNSPIRE HEP

Professional Summary

A quick learner and meticulous Ph.D. candidate in Theoretical and Mathematical Physics, eager to apply his analytical and problem-solving skills to real-world challenges. Adept at bridging abstract thinking and practical applications. Proficient in Python, Mathematica, and state-of-the-art machine learning techniques. Equally effective in team and leadership roles, managing multidisciplinary projects and mentoring team members.

Education

Ph.D. in Theoretical and Mathematical Physics — **Hamburg**
Universät Hamburg and DESY — *2022–Present*
Focus on Geometric Invariant Theory and Combinatorics techniques applied to the study of vacua of supersymmetric theories in various String Theory-engineered models.

MSc in Physics — **London**
Imperial College London, First Class — *2021–2022*
Core Modules: (Advanced) Quantum Field Theory, Programming Skills, Supersymmetry, Unification, Standard Model & Beyond.
Thesis: "Construction of $6d$ $\mathcal{N} = (1, 0)$ SCFTs and Higgs Branch Hasse Diagram".

BSc in Physics — **Pisa**
Università di Pisa, 110/110 cum laude — *2018–2021*
Core Modules: Programming, Linear Algebra, Mathematical Methods, Complex Analysis, Quantum Mechanics, Group Theory, Laboratory (Statistics and Probability).
Thesis: "Distribution for products in asymmetric e^+e^- collider: an example in B and L violating τ decay".

Experience

Graduate Researcher — **Hamburg**
Deutsches Elektronen–Synchrotron DESY — *2022-Present*
Researcher in the string theory group, undertaking volunteering IT help-desk job.
My responsibilities include mentoring of PhDs students (Guido Bonori) and science communication via seminar series and outreach meetings.

Skills

Programming: PYTHON (numpy, pandas, pytorch, pytorch geometric, networkx), MATHEMATICA, LaTeX

Publications

1. C. Lawrie and **L. Mansi**, "*Detecting Homeomorphic 3-manifolds via Graph Neural Networks*", ArXiV: [2409.02126], [cs.LG, hep-th].
2. C. Lawrie and **L. Mansi**, "*The Higgs Branch of 6d (1,0) SCFTs & LSTs with DE-type SUSY Enhancement*", Physical Review. D., 110(6), DOI: 10.1103/PhysRevD.110.066014, [hep-th].
3. **L. Mansi** and M. Sperling, "*Unravelling T-Duality: Magnetic Quivers in Rank-zero Little String Theories*", ArXiV: [2312.12510], [hep-th].
4. C. Lawrie and **L. Mansi**, "*The Higgs Branch of Heterotic LSTs: Hasse Diagrams and Generalized Symmetries*", Physical Review. D., 110(2), DOI: 10.1103/PhysRevD.110.026016, [hep-th].

Invited Speaker

– *"Decay & fission of orthosymplectic 3d $\mathcal{N} = 4$ quiver gauge theories"*, Università degli Studi di Milano Bicocca, Milan. *Oct 2024*

– *"The Higgs branch of minimally supersymmetric 6d SCFTs Higgsable to $(2, 0)$ theories"*, Theory Workshop, DESY. *Sep 2024*

– *"The Higgs branch of minimally supersymmetric 6d SCFTs Higgsable to $(2, 0)$ theories"*, Quiver Meeting, Youtube Recording. *Jul 2024*

– *"The Higgs branch of Heterotic LST: Hasse Diagrams and Higher Form Symmetries"*, Theory Workshop, DESY. *Sep 2023*

– *"An introduction to the Standard Model and Beyond"*, Outreach Talk, I.I.S. "Ettore Majorana", Avezzano. *May 2023*

Awards

Outstanding Performance in the MSc Prize, Highest graduating average in my cohort (86.3%). *2022*

Medaglia del Cherubino, prize for the graduating with the highest mark in BSc. *2021*

Riduzione per Merito, tax deduction for being consistently in the top 30 people in my cohort. *2018–21*

Languages

Italian: Mother tongue **English**: Full working proficiency **Spanish**: Intermediate **German**: Basic

Miscellaneous Experiences

Code Repositories

Lollo0900.github.io: An under-construction personal website project, available at this address. *2024*

Plumbed 3-manifolds: A project on Graph Neural Networks, available on GitHub. *2024*

BachelorThesis: A project on simulations of particles scattering, available on GitHub. *2021*

Certifications

Time Series: Online certificate awarded by Kaggle. *2024*

Intermediate Machine Learning: Online certificate awarded by Kaggle. *2024*

Intro to Deep Learning: Online certificate awarded by Kaggle. *2024*

Understanding Financial Markets: Certificate awarded by Université De Genève via Coursera. *2023*

Fundamentals of Equities: Certificate awarded by Université De Genève via Coursera. *2023*

SEC: Awarded by the Investment Society of Imperial College London *2022*

References

Available on request.