SIMONE ROMITI

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EDUCATION

Roma Tre University — Rome, Italy
PhD in Theoretical Physics (Dissertation 22 April 2022) — 2018 – 2021

- **1st in ranking** for public admission exam to PhD program
- Affiliation with **INFN (Istituto Nazionale di Fisica Nucleare)**
- **Tutorial sessions and teaching assistant** for undergraduate courses

Roma Tre University — Rome, Italy
M.S. in Theoretical Physics of Elementary Particles — 2016 – 2018

- **Final grade**: 110/110 *cum laude*, **GPA: 29.85/30**

Roma Tre University — Rome, Italy
B.S. in Physics — 2013 – 2016

- **Final grade**: 110/110 *cum laude*, **GPA: 28.84 / 30**
- **Merit Scholarship** awarded for top high school marks and academic excellence.

WORK EXPERIENCE

University of Bern — Apr 2024–Present
Postdoctoral Researcher — Bern, Switzerland

- **Innovative method** using **Physics-Informed Neural Networks (PINNs)** → exponential to polynomial scaling of memory
- **Reference scientist** for Hadronic Vacuum Polarization (HVP) analysis of Bern group → sub-permille precision achievement
- **Pole contribution** to Hadronic Light-by-Light contribution to $(g-2)_\mu$ → achieved N^6 to $N\log(N)$ scaling improvement
- **Main developer** of open-source libraries → my code for Monte Carlo simulations led to scientific publications
- **Supervision of PhD students**

University of Bonn — Nov 2021–Mar 2024
Postdoctoral Researcher — Bonn, Germany

- ETMC ensembles generation → fine tuned simulation and obtained $O(a)$-improved configurations
- GPU code optimization → achieved ~ 1.5 improvement by auto-tuning of Multigrid paremeters
- **Novel method for SU(2) Hamiltonians** → achieved machine-precision exactness for canonical commutation relations
- **Monte Carlo and Quantum Computing** → obtained Hamiltonian limit and calculations of glueballs spectrum

- **Supervision of Master's and PhD students**, **tutorial sessions of undergraduate courses**

SKILLS

Programming Languages - C, C++, Python, Bash, R
High-Performance Computing - openMP, MPI, CUDA, EasyBuild, SLURM
Frameworks and Libraries - Jupyter, NumPy, SymPy, SciPy, Pandas, Matplotlib, Plotly, PyTorch, Streamlit
Computational Methods - Monte Carlo, Bayesian statistics, Machine Learning (PyTorch): PINNs, VAEs, diffusion models
Tools & DevOps - LaTeX, Markdown, RMarkdown, Quarto, Docker, Git, GitHub Actions
Languages - Italian (native), English (proficient), German (A2.1)

EXTRA ACTIVITIES AND AWARDS

Invited speaker at Scale Setting workshop — ECT* | March 2025
Main organizer of Hamiltonian LGTs workshop — ECT* | September 2025
Principal Investigator for 240k GPU node-hours allocation — CSCS (ALPS) | October 2025
Leading organizer of weekly seminars at HISKP department — HISKP | 2022 - 2024