Paul Schneidewind Telge

1999-02-27, Lima | Peruvian, German
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Physics student specializing in quantum field theory, holography, and the interface between gravity and high-energy theory. Combines analytical rigor with computational modeling to explore the structure of spacetime and field interactions. Passionate about advancing fundamental research and bridging the gap between theory and experiment.

Education

Ludwig-Maximilian-University Munich Munich, Germany
MSc. Physics (completed with grade "very good") *2022-2025*

- Advanced coursework in particle physics, standard model, and quantum field theory in curved space-times
- Graduate seminars on Particle physics experiments and quantum field theory

Ludwig-Maximilian-University Munich Munich, Germany
BSc. Physics (completed with grade "good") *2019-2022*

- Lab courses in atomic and X-ray spectroscopy
- Advanced Lab course in particle scattering, including experience with solid state detectors

Studienkolleg Munich, Germany
German University Entrance Qualification *2017-2018*

Villa Alarife School Lima, Peru
High School Diploma (Finished with Honors) *2005-2016*

Research Experience

Ludwig-Maximilian-University Munich 2024 – 2025
Propagation and Scattering in a Holographic Quantum Field Theory (with F. Oliver) *Master Thesis*

- Contributed to the subsequent theoretical development and expansion of the theory presented in Friedrich et al. 2024
- Analytically investigated the dynamic behavior of observables in the newly formulated holographic QFT, addressing open questions on the propagation of the field
- Designed and executed numerical calculations for cases in which these quantities could not be handled analytically
- Found well behaved approximations and asymptotics to study the same quantities in regimes inaccessible to numerical calculations
- Derived path integral formalism for the quantum field theory given in the publication and computed the propagator, establishing the foundation for perturbative treatment of an interactive holographic theory.
- Discovered mappings and isometries between the model explored in the thesis and other parallel work
- Researched related work (Celestial CFT, Gauge Theory and BRST symmetry) & presented summaries to the rest of the research group
- Participated in the research group's weekly journal club

Gauge Symmetry is a Lie! 2024

- Pedagogical review of gauge theory, with an emphasis in drawing the distinction between physical symmetries and co-ordinate symmetries, i.e. passive v.s. active transformations
- Established analogies between gauge theory and general relativity, explaining gauge theories as a geometric consequence of fields existing in a principle bundle
- Explored alternatives to the totalist principle for introducing terms into the Lagrangian of a gauge-invariant theory

Ludwig-Maximilian-University Munich 2022
Ontological Models Some Results and a Few Shortcomings (with D. Oriti) *Bachelor Thesis*

- Explored the limitations of ψ-ontological models in quantum mechanics and their interpretational implications
- Presented several important theorems for the foundations of quantum mechanics in a single mathematical framework

Technical Skills

- **Theoretical Physics:** Quantum Field Theory, Gauge Theory, Holography, Celestial CFT, BRST Quantization
- **Programming & Simulation:** Python (NumPy, SciPy, Matplotlib), C++, Mathematica; numerical integration and symbolic computation for QFT models
- **Scientific Writing & Visualization:** LaTeX, Microsoft Office Suite, Prezi

Languages

- Spanish — *Native Language*
- English — Fluent
- German — Fluent

Scientific Outreach and Engagement

Junior M-Com 2023 – 2025
Deutsches Museum *Munich, Germany*

- Translated complex scientific concepts into accessible formats for public audiences
- Collaborated in interdisciplinary teams to promote STEM engagement and scientific literacy

Studentische Hilfskraft 2021 – 2023
Deutsches Museum *Munich, Germany*

Research Interests

Quantum Field Theory • Holography • Gauge Theory • Quantum Gravity • Computational Physics