Carl Jakob Moritz

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Education

MSc in Physics
University of Vienna, Austria, 2022 – 2026 (expected)
Thesis: "Michel parameters for muon decay in SMEFT and LEFT" (ongoing)
Supervisor: Prof. Massimiliano Procura

BSc in Physics
University of Leipzig, Germany, 2015 – 2020
Thesis: "Universal finite-size scaling function of non-conserved q-states Potts model"
Supervisor: Prof. Wolfhard Janke

BA in Philosophy
University of Leipzig, Germany, 2018 – 2021
Hong Kong Baptist University, Hong Kong SAR, 2021 – 2022
Thesis: "Hegel und das Differentialkalkül" ("Hegel on Calculus")
Supervisor: Prof. Sebastian Rödl

Research Experience

Master's thesis project: Michel parameters for muon decay in SMEFT and LEFT (ongoing)

- Analyzing influence of Standard Model Effective Field Theory (SMEFT) dimension six operators on Michel parameters of the electron spectrum in muon decay
- Consistent analysis of the complete set Low Energy Effective Field Theory (LEFT) operators relevant for muon decay
- Determining bounds for SMEFT dimension six operators from current experimental data on muon decay

Bachelor physics: Universal finite-size scaling function of non-conserved q-states Potts model

- Monte Carlo simulation of domain growth in non-conserved q-states Potts model after quench from homogenous phase to temperature below the critical point
- Presentation of a finite-size scaling function which is universal with respect to the q parameter of the Potts model

Bachelor philosophy: Hegel und das Differentialkalkül (Hegel on Calculus)

- Analyzing Hegel's concepts of differential calculus and mathematical infinity in the context of his dialectical development of logical categories in the *Science of Logic*
- Comparing Hegel's solution for the claimed inconsistencies of differential calculus at his time with Cauchy's innovations in calculus

Skills

- Working in an international team with people of different backgrounds and professions
- Fluent in English and German, moderate levels of French (B1) and Mandarin (HSK 3)
- Computational evaluation of both natural and simulated physical systems with C, Wolfram Mathematica and Python
- Communicating scientific knowledge and research to a wide audience and writing about physics and philosophy on both academic and journalistic levels