

MICHAEL MÜLLER

PERSONAL DATA

Nationality: Austrian
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EDUCATION

PhD in Physics (Theoretical Astrophysics) - part II *2022 - 2024 (expected)*
Institution(s): **University of Greifswald**, Germany
Supervisor: Daniel Siegel

PhD in Physics (Theoretical Astrophysics) - part I *2021 - 2022*
Institution(s): **University of Guelph / Perimeter Institute**, Canada
Supervisor: Daniel Siegel
Advisory Committee: Eric Poisson (University of Guelph) , Luis Lehner (Perimeter Institute) , Huan Yang (Perimeter Institute)
Current cumulative '4.0 GPA': 4.0

MSc in Physics (Theoretical and Computational Physics) *2018 - 2020*
Institution(s): **Graz University of Technology / Karl-Franzens University**, Austria
Master Thesis: *Gravitational bound states in quantum gravity (Dark matter as a purely gravitational phenomenon)*
Supervisor: Axel Torsten Maas
Cumulative '4.0 GPA': 4.0
Overall mark: Pass with distinction[†]

BSc in Physics *2015 - 2018*
Institution(s): **Graz University of Technology / Karl-Franzens University**, Austria
Bachelor Thesis: *Optimisation of SU(2) Landau Gauge-Fixing Algorithms*
Supervisor: Axel Torsten Maas
Cumulative '4.0 GPA': 4.0
Overall mark: Pass with distinction[†]

EXTRA-CURRICULAR

Bad Honnef Physics School on Black Holes *September 2022*
Gravitational Waves Beyond the Boxes II Workshop - Perimeter Institute *April 2022*
Niels Bohr International Academy Summer School on Gravitational Wave Astrophysics *July 2021*
The 24th Capra Meeting on Radiation Reaction in General Relativity *June 2021*
SHARCNET 2021 Summer School *May 2021 - June 2021*
LISA Canada 2021 Workshop *May 2021*
Workshop on Conceptual and Phenomenological Reflections on Gauge Symmetries, the Brout-Englert-Higgs Mechanism, Particles, and Observables *November 2020*

*According to the University of Guelph 4.0 GPA scale.

[†]The overall assessment is "pass with distinction" if at least 50% are assessed with "sehr gut" (A+), and if none of the marks are below "gut" (A- to A).

Jena Leipzig Physik-Combo on Strong Dynamics and Criticality in Quantum and Gravitational Systems	<i>September 2020</i>
Online Miniworkshop on Quantum Gravity Phenomenology	<i>April 2020</i>
Online Miniworkshop on Quantum Gravity	<i>April 2020</i>
Nordic Winter School in Theoretical Physics, by CP3 Origins	<i>November 2019</i>
39th Summer Student Program at GSI/FAIR	<i>July 2019 - September 2019</i>
Introductory Course of Ultracold Quantum Gases , organised by the Innsbruck Physics Research Center of the Innsbruck University and the Institute of Quantum Optics and Quantum Information (IQOQI)	<i>July 2019</i>

TEACHING EXPERIENCE

Teaching Assistant for Mechanics	<i>January 2021 - May 2021</i>
Exercise instructor for Probability Theory and Statistics	<i>March 2020 - July 2020</i>
Tutor for Quantum Mechanics	<i>March 2020 - July 2020</i>
Tutor for Advanced Quantum Mechanics and Theoretical Mechanics	<i>October 2019 - February 2020</i>

SCHOLARSHIPS

International Doctoral Tuition Scholarship from University of Guelph[‡]	<i>2021/2022</i>
Merit-Based Scholarship from Graz University of Technology[§]	<i>2016/17, 2017/18, 2019/20</i>

COMPUTER SKILLS

Programming Languages: C++, Python, Mathematica, CADABRA, L^AT_EX
Operating Systems: Ubuntu/Linux, Windows

LANGUAGE SKILLS

German: Mother tongue
English: Fluent
Russian: Basic user (4 completed language courses in Russian at Graz University of Technology)

PROJECTS AND INTERNSHIPS

Serenity Space Suit Simulator Project: As the deputy team leader of the Electronics and Computing team at the Austrian Space Forum I was involved in the planning and design of a new space suit simulator (<https://oewf.org/en/amadee-program/spacesuit-simulator/>), which mimics the conditions within a real spacesuit on the surface of Mars. My responsibilities included supervision of team members as well as design and review of electronic hardware components. *2018-2021*

Summer Student Project at GSI/FAIR: As part of my participation in the 39th Summer Student Program at GSI/FAIR, I was working on a research project with Dr. Iouri Vassiliev, which investigated observable implications of the formation of a quark-gluon plasma in heavy-ion collisions. To this end

[‡]Only students with an average grade above A- are considered.

[§]Only students with an average grade above A- are considered and then the selection is grade-based, depending on the number of eligible students.

I studied the PHSD code package (<http://theory.gsi.de/~ebratkov/phsd-project/PHSD>) for modelling hadron-string dynamics and used it to model relativistic heavy-ion collisions. *July 2019 - September 2019*

Study Project in Functional Renormalization Group Methods: I studied functional renormalization group methods in particle physics and quantum gravity and gained insight into this tool for quantum gravity by recalculating one of the original papers in this field (<https://arxiv.org/abs/1507.00968>) within a team of four. *March 2019 - July 2019*

Junior Researchers Programme at the Austrian Space Forum: I participated in the AMADEE-18 Mars Analog Simulation as a member of the field crew and a junior principal investigator of the A3DPT-2-Mars Experiment (<https://oewf.org/en/portfolio/amadee-18/>), studying the applications and uses of 3D printers in the context of Martian surface operations. *January 2018 - March 2018*

Summer Internship at the Austrian Space Forum: As part of my internships I was responsible for maintenance and development of the space suit simulator operated by the Austrian Space Forum (<https://oewf.org/en/amadee-program/spacesuit-simulator/>), I participated in the international mars analog simulation AMADEE-15 (<https://oewf.org/en/portfolio/austria-amadee-15/>) and helped with preparations for the mars analog simulation AMADEE-18 (<https://oewf.org/en/portfolio/amadee-18/>). Furthermore, I was involved in public outreach projects at Austrian primary schools to spark fascination for research and technology early on. *2014/2015/2016/2017*

CONFERENCE PAPERS

Operational Benefit and Applicability of a 3D Printer in Future Human Mars Missions - Results from Analog Testing (Müller et al., 2018), presented at SpaceOps Conference 2018 (1st place 'Best Student Paper Award')

Advantages Of 3D Printing Technology To Operations In Future Human Exploration Of Mars (Coen et al. 2017), presented at IAC 2017

Operational Feasibility of Human-Robotic Analog Planetary Missions: An analysis from AMADEE-15 (Vyshnav et al., 2016), presented at SpaceOps Conference 2016 (2nd place 'Best Student Paper Award')

REFERENCES ARE AVAILABLE ON REQUEST
