

# Joachim Pomper

MSc

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Italy

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🌐 [joachim-pomper.github.io/homepage/](https://joachim-pomper.github.io/homepage/)

🐦 [JoachimPomper](#)

🔗 [Joachim-Pomper](#)

## Personal information

Date of birth 22.04.1997

Nationality Austria

## Education

2023-now **PhD student at the intersection between high energy and astrophysics**,  
University of Pisa

2020-2023 **Master studies in theoretical and computational physics**, University of Technology Graz (TUG) and University of Graz (KFU)

2016-2020 **Bachelor studies in technical physics**, University of Technology Graz (TUG) and University of Graz (KFU)  
Graduated with distinction (grade 1.0).

2007-2015 **School of general education**, BRG Petersgasse Graz

2003 -2007 **Elementary school**, Sacré Coeur Graz

### Summer school programs

14.03.2022 - **Theoretical Aspects of Astroparticle Physics, Cosmology and Gravitation**,  
25.03.2022 Galileo Galilei Institute

## Languages

German C2+

*mother tongue*

English C2

*(only C1 certified)*

Italian A1

*(not certified)*

## Programming languages

Matlab proficient

*work experience*

Python proficient

*work experience*

Julia proficient

*work experience*

C++ Basic knowledge

*university course*

SageMath Basic knowledge

*self-taught*

Mathematica Basic knowledge

*self-taught*

Latex proficient

*work experience*

## Publications

Sent to SciPost **Low energy effective theories of composite dark matter with real representations**

## Awards and Fellowships

2024 **Recipient of the ÖPG Students' Award 2024**  
Awarded for extraordinary work in the master thesis and excellent communication of the results to a broad audience.

## Conference talks (selection)

ACHT2023 **Low-energy effective description of light pseudo-scalar mesons in  $SO(N)$ -like dark QCD**

Presentation of extended results following my master thesis.

DSU2022 **Composite dark matter from non-abelian gauge theories with real representations**

Presentation of results of my master thesis.

## Thesis

Bachelor thesis **Analytische Berechnung der spontanen Magnetisierung von isotropen homogenen Ising Ferromagneten unter der Verwendung von Graßmann Zahlen**  
Supervisor: Univ.-Prof. Dipl.-Phys. Dr.rer.nat. Wolfgang von der Linden

Master thesis **Low-energy effective description of light pseudo-scalar mesons in  $SO(N)$ -like dark QCD**  
Supervisor: PD. Dr. Suchita Kulkarni

## Teaching Experience

01.10.2022-31.01.2023 **Teaching assistant for advanced Quantum Mechanics**, *Institute of Theoretical Physics of KFU-Graz*, Physics master course  
Correcting homework and tutoring students in the subject of quantum mechanics.

01.10.2021-31.01.2022 **Teaching assistant for statistical physics**, *Institute of Theoretical Physics of KFU-Graz*, Physics master course  
Tutoring and grading of first semester master students in statistical physics.

01.10.2021-31.01.2022 **Teaching assistant for linear algebra**, *Institute of Applied Mathematics of TU-Graz*, Physics Bachelor course  
Tutoring and grading of first semester bachelor students in linear algebra.

01.3.2021-30.06.2021 **Teaching assistant for differential forms in the context of electromagnetism**, *Institute of Applied Mathematics of TU-Graz*, Mathematics master course  
Researching, writing and preparing lecture notes for a mathematics master's program special topic lecture on differential forms in the context of electromagnetism.

01.3.2021-30.06.2021 **Teaching assistant for vector-calculus**, *Institute of Applied Mathematics of TU-Graz*, Physics bachelor course  
Tutoring and grading of second semester bachelor students in vector-calculus.

- 01.10.2020- **Teaching assistant for calculus**, *Institute of Applied Mathematics of TU-Graz*,  
 28.02.2021 Physics Bachelor course  
 Tutoring and grading of first semester bachelor students in basic calculus.
- 01.3.2019- **Teaching assistant for programming in physics**, *Institute of Computational  
 30.06.2019 Physics of TU-Graz*, Physics bachelor course  
 Tutoring students in basic Matlab programming.
- 01.10.2018- **Teaching assistant for linear algebra**, *Institute of Applied Mathematics of TU-  
 28.02.2019 Graz*, Physics bachelor course  
 Tutoring and grading of first semester bachelor students in linear algebra.
- 01.10.2017- **Teaching assistant for linear algebra**, *Institute of Applied Mathematics of TU-  
 28.02.2018 Graz*, Physics bachelor course  
 Tutoring and grading of first semester bachelor students in linear algebra.

## Additional work experience

### Part-time jobs

- 01.10.2019- **Student trainee**, *BEST - Bioenergy and Sustainable Technologies, Area for au-  
 30.09.2020 tomation and control*, <https://best-research.eu>  
 Primarily focused on testing and developing software for hydraulic and thermal simulation  
 of buildings and district heating grids

### Internships

- 05.08.2018 - **Internship**, *BEST - Bioenergy and Sustainable Technologies, Subarea 4.2*  
 30.09.2018 Primarily focused on quality analysis of prediction models for a model predictive controller.