

# Matteo Broccoli

## Curriculum Vitae

ORCID  
INSPIRE  
ResearchGate



### Education

- 2018-2022 **Ph.D. Student**, *Max Planck Institute for Gravitational Physics*, Potsdam, and *Humboldt University of Berlin*, Berlin, Germany.  
Final grade: **Summa cum Laude**.  
Thesis title: “*Aspects of Conformal Field Theory*”.  
Supervisors: Prof. Dr. Stefan Theisen and Dr. Olaf Hohm.
- 2016-2018 **MSc in Theoretical Physics**, *Alma Mater Studiorum - University of Bologna*, Bologna, Italy.  
Final grade: **110/110 cum Laude**.  
Thesis title: “*On the trace anomaly of a Weyl fermion in a gauge background*”.  
Supervisor: Prof. Dr. Fiorenzo Bastianelli. Co-Supervisor: Prof. Dr. Stefan Theisen.
- 2013-2016 **BSc in Physics**, *Alma Mater Studiorum - University of Bologna*, Bologna, Italy.  
Final grade: **110/110 cum Laude**.  
Thesis title: “*MOND and TeVeS: Alternative theories to the dark matter hypothesis*”.  
Supervisor: Prof. Dr. Roberto Casadio.
- 2008-2013 **High School Diploma**, *Istituto Statale di Istruzione Superiore “G. Bruno” - Scientific High School*, Budrio (BO), Italy.  
School-leaving examination mark: **100/100 cum Laude**.

### Professional Experience

- 2022-today **Postdoc Researcher**, *Centro Euro-Mediterraneo sui Cambiamenti Climatici*, Bologna, Italy.  
Design of an observation operator based on machine learning technique for the assimilation of skin/subskin Sea Surface Temperature satellite retrievals in the CMCC analysis systems.
- 03-08.2018 **Guest Scientist**, *Max Planck Institute for Gravitational Physics*, Potsdam, Germany.  
Preparation of the master’s thesis.
- 2016 (100h) **Internship**, *Alma Mater Studiorum - University of Bologna*, Bologna, Italy.  
Bibliographical research and writing of a scientific paper using LaTeX environment.

### Schools and Conferences

- 14-17.11.2022 **ECMWF-ESA Workshop on Machine Learning for Earth Observation and Prediction**, *online*, Reading, England.
- 16-19.05.2022 **Atlantic General Relativity 2022**, *online*, Newfoundland, Canada.
- 21-24.09.2021 **Bright ideas for a dark universe**, *DESY*, Hamburg, Germany.
- 1-5.02.2021 **CERN Winter School on Supergravity, Strings and Gauge Theory 2021**, *online*, Geneva, Switzerland.
- 21-25.09.2020 **Great Lessons from Exact techniques and Beyond**, *online*, Padova, Italy.
- 9-16.02.2020 **YRISW 2020: A modern primer for superconformal field theories**, *DESY*, Hamburg, Germany.

- 28.03-5.04.2019 **Spring School on Superstring Theory and Related Topics**, *ICTP*, Trieste, Italy.
- 10-16.02.2019 **YRISW 2019: A modern primer for 2D CFT**, *ESI*, Vienna, Austria.
- 8-14.08.2018 **International Conference of Physics Students 2018**, Helsinki, Finland.
- 3-7.04.2018 **String Steilkurs - Part 1: Introduction to String Theory**, *DESY*, Hamburg, Germany.

## Talks

### Seminars

*Irrelevant operators and their holographic anomalies*: **Worldline Meetings; University of Southampton.**

*The Third Way to Interacting  $p$ -form Theories*: **University of Milan; University of Bologna.**

### At Conferences

*The Third Way to Interacting  $p$ -form Theories*: **Bright ideas for a dark universe**, Hamburg; **Atlantic GR 2022**, Newfoundland.

*On the trace anomaly of a Weyl fermion in a gauge background*: **ICPS 2018**, Helsinki.

## Transferable Skills Courses

- 20-24.06.2022 **Machine Learning in Theoretical Physics**, *Google Research*.
- 26-29.04.2021 **The Scientific Writing Workshop**, *Write About Science*.
- 27-28.02.2020 **Scientific Presentation**, *The Speaking Adventure*.

## Personal Skills

### Languages

Mother tongue **Italian**, advanced **English**, proficient **German**, beginner **French**.

### Communication Skills

Good communication skills developed through scientific presentations and discussions during training activities as well as research collaborations.

### Organisational and Managerial Skills

Excellent teamwork and organisational skills, acquired during the years of study and the collaborative researches carried out. Ability to work independently as well as in teams, with students and junior/senior researchers.

### Computing Skills

- Advanced user **Wolfram Mathematica, TeX, C++.**
- Proficient user **Python, LabVIEW, ROOT.**

### Other Skills

- Photographer **Nature and wildlife**, amateur.  
Featured in published magazines.
- Musician **Bass guitar and Cello**, amateur player.  
Experiences with international musicians.

## Voluntary Work

- 2022 **Installation of bird nesting boxes**, *Max Planck Campus*, Potsdam.
- 2021 **Short film shooting**, about conservation activities in the Potsdam area.
- from 2020 **Wildlife photographer**, for a local newspaper in Potsdam.

## Scientific Outreach

2022 **Open Day**, *Max Planck Institute for Gravitational Physics*, Potsdam.

## Scholarship

2017 Winner of a scholarship from the University of Bologna **School of Science** for the "*preparation abroad for the final examination*", awarded after a selection of the master's thesis projects submitted to the School.

## Awards

2013 **Youth Merit Award**, "*for the commitment proved and the profit achieved throughout the course of the studies*", Rotary Club, Bologna Valle dell'Idice.

2012 **First place**, "*for the completeness of information, scientific rigour and effectiveness in communication*" in the Forensic Genetics section for the poster "From biological trace to DNA" presented at the end of the Summer School "Scienze della Vita".