

Nastassia Grimm | Curriculum Vitae

Postdoctoral Researcher in Cosmology

Département de Physique Théorique, Université de Genève
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Personal Information

Date of birth 12 May 1994

Citizenship Germany

Employment

01/10/2021 **Postdoctoral researcher** at *Département de Physique Théorique, University of Geneva*,
to present Geneva, Switzerland.

Education

01/09/2017 **PhD student**, *Center for Theoretical Astrophysics and Cosmology*,
to 17/09/2021 *University of Zurich, Zurich, Switzerland.*

Supervisor: Prof. Dr Jaiyul Yoo

Thesis title: "General relativistic effects in cosmological weak lensing"

14/09/2015 **MSc**, *ETH Zurich, Zurich, Switzerland.*

to 28/08/2017 Master of Science in Applied Mathematics; Area of application: Theoretical Physics

Graduated with total grade 5.57 (best possible: 6.0; lowest passing grade: 4.0)

17/09/2012 **BSc**, *University of Zurich, Zurich, Switzerland.*

to 21/09/2015 Bachelor of Science in Mathematics, with Physics as a minor subject

Graduated with total grade 5.5 (best possible: 6.0; lowest passing grade: 4.0)

Total grade major subject: 5.4; Total grade minor subject: 5.8

Experience in teaching & mentoring

Fall 2021 Teaching & mentoring activities, *University of Geneva, Geneva, Switzerland.*

to present Responsibilities: Teaching assistance for the courses „Mechanics II“ [original: „Mecanique II“] and „Cosmology“, assistance on the supervision of a PhD student (student name: Sveva Castello, thesis title TBA), referee and co-examiner for a Master thesis (student name: Aude Hussy, thesis title „Constraining the Weyl potential with GIMCO“).

Fall 2017 Teaching assistance, *University of Zurich, Zurich, Switzerland.*

to fall 2020 Courses: “The Universe”, “Introduction to Astrobiology”, “Theoretical Astrophysics”, “Theoretical Cosmology” and “Introduction to Astrophysics”.

Responsibilities: Preparation of exercise sheets and solutions, correction of exercises, leading practice sessions, acting as co-examiner.

Fall 2015 Teaching assistance, *ETH Zurich, Zurich, Switzerland.*

to fall 2016 Courses: “Analysis II” (for students of mathematics and physics) and “Analysis III” (for students of electrical engineering).

Responsibilities: Correction of exercise sheets, leading practice sessions.

Fall 2013 Teaching assistance, *University of Zurich, Zurich, Switzerland.*

Course: “Programming for Mathematicians” (programming language: Java).

Responsibilities: Correction of exercise sheets, leading practice sessions.

Selection of conference, workshop and seminar talks

- 11/07/2024 Presentation on „Combining the Weyl potential and galaxy velocities: new measurements of E_G “ at the workshop *Relativistic Effects and Novel Observables in Cosmology* (University of Geneva).
- 14/05/2024 Presentation on “A model-independent test of gravity from the Weyl potential evolution” at the *4th EuCAPT Annual Symposium* (CERN).
- 18/01/2024 Presentation on “Model-independent tests of gravity from galaxy surveys” at the *Rencontres de cosmologie des lacs alpins* (University of Geneva).
- 21/06/2022 Presentation on “Rescuing constraints on modified gravity through relativistic distortions in large-scale structure” at the workshop *General Relativistic effects in observing the Large-Scale Structure of the Universe* (Centro de Astrofísica da Universidade do Porto).
- 03/05/2021 Presentation on “Galaxy Power Spectrum in General Relativity” at the workshop *Relativistic Aspects of Large-Scale Structure - Theory and Simulation* (University of Zurich). The talk can be found online: <https://youtu.be/0pEXngDZizg>
- June – Nov. 2020 Series of invited seminar talks on “Galaxy Power Spectrum in General Relativity” at
- CERN, Theory Department (11/06/2020).
 - California Institute of Technology (06/10/2020).
 - University of Cambridge, Institute of Astronomy (12/10/2020).
 - University of Oxford, Department of Physics (10/11/2020).
 - Princeton University / Institute for Advanced Study (30/11/2020).
- 12/06/2020 Presentation on “Galaxy Power Spectrum in General Relativity” at the workshop *Impact of relativistic effects on searches for non-Gaussianity with two-point functions* (CERN).
- 06/02/2018 Presentation on “Jacobi Mapping Approach for a precise Cosmological Weak Lensing Formalism” at the *Swiss Cosmology Days 2018* (CERN).

Outreach

- 2022 – 2024 Contributions to the YouTube channel [Cosmic Blueshift](#) in French & English:
- „Will Einstein pass the test of space-time distortions?“ [Original title „Einstein passera-t'il le test des distorsions de l'espace-temps?“];
Published 03/04/2024; 4,380 views as of 26/08/2024.
 - „Measuring spacetime distortions with light bending“ [Original title: „Mesurer les déformations de l'espace-temps avec la déviation de la lumière“];
Published 28/12/2023; 15,117 views as of 26/08/2024.
 - „Modifying Einstein’s theory of gravity“ [Original title: „Modifier la théorie de la gravité d’Einstein“];
Published 01/12/2023, 9,202 views as of 26/08/2024.
 - „Dr Nastassia Grimm, postdoctoral researcher“ [Original in English].
Published 04/02/2023, 317 views as of 26/08/2024.
 - „How to use galaxies to test Einstein’s General Relativity by three cosmologists“ [Original in English];
Published 13/05/2022, 1,995 views as of 26/08/2024.
- 07/02/2024 Outreach talk at the *Institute International de Lancy* as part of the International Day of Women and Girls in Science (including an [interview in the school web radio](#)); student age: 14-15 years.
- 02/02/2023 Outreach talk at the *Ecole Internationale de Genève* as part of the International Day of Women and Girls in Science; student age: 12-13 years.

Organisation of seminars

- Fall 2023 Main organiser of the *Cosmology and Particle Physics Seminar Series* at the *University of Geneva* to present

Awards and achievements at mathematical competitions

- July 2012 Awarded a bronze medal at the 53th International Mathematical Olympiad (IMO) in Mar del Plata (Argentina).
- May 2012 Achieved the 5th place at the Austrian national competition of the Mathematical Olympiad.
- May 2011 Achieved the 11th place at the Austrian national competition of the Mathematical Olympiad; Qualified for and attended the 5th Middle European Mathematical Olympiad in Varaždin (Croatia).
- 2007 Achieved the 3rd place of all Austrian participants in the „Mathematical Kangaroo“ (age grade 7).

Software products

- 2023 Co-development of the Python code EF-TIGRE („Effective Field Theory of Interacting dark energy with Gravitational REdshift“).
Publicly available at: <https://github.com/Mik3M4n/EF-TIGRE>
Description: Package for constraining interacting dark energy/dark matter models in the effective field theory framework through large-scale structures observables, including the gravitational redshift effect.
Scientific usage: Used in Castello et al. (2024), arXiv:[2311.14425](https://arxiv.org/abs/2311.14425), and Tutusaus et al. (2023), arXiv:[2312.06434](https://arxiv.org/abs/2312.06434).

IT Skills

- Python Advanced; frequent application and development of software for own research work.
- Mathematica Advanced; applied for numerical evaluations in own research work.
- Matlab Trained in machine learning applications (completed online course by Stanford University).
- Java Completed a respective university course in 2012 with grade 6.0; Teaching assistant for the same course in the year 2013.

Languages

- German Native speaker
- English Fluent (level C2, certified by the “Cambridge Certificate in Advanced English”)
- French, Russian Intermediate