

# ALEXANDER REEVES

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## EDUCATION

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### ETH Zürich

*September 2021 - current*

PhD candidate in Professor Alexandre Refregier's Cosmology group with secondary supervision from Prof. Andrina Nicola (Universität Bonn).

Multiprobe analysis combining Cosmic Microwave Background and Large Scale Structure data.

Using the Effective Field Theory of Large Scale Structure (EFTofLSS) to describe galaxy clustering.

### Downing College, University of Cambridge

*September 2017 - July 2021*

Masters: Part III Natural sciences (Astrophysics)

Masters grade: 1<sup>st</sup> class (ranked 4<sup>th</sup> in cohort)

Undergraduate: Part II Physics

Undergraduate grade: 1<sup>st</sup> class

## AWARDS

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### Doc.Mobility fellowship, ETHZ

*2024*

Awarded (9100CHF) fellowship to undertake research at the University of California, Berkeley and Lawrence Berkeley National lab under the supervision of Simone Ferraro and Martin White.

### 1st place: International PLANCKS theoretical Physics competition

*2020*

Part of the 4-person University of Cambridge team that came first out of 45 University teams at the international finals.

### Whitelegg and Unwin Scholarships, Downing College

*2018 & 2021*

Scholarships for academic achievement.

### Olympiads, Latymer Upper

*2016 & 2017*

Gold (Top 50) certificate in the British Physics Olympiad.

## STUDENT SUPERVISION

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### Domitille Chebat, Master thesis co-supervisor

*February 2024 - September 2024*

Thesis title: 'Realistic field level simulations with the effective field Theory of Large Scale Structure'

### Laura Reymond, Master thesis co-supervisor

*February 2024 - September 2024*

Thesis title: 'Precise computation of the angular power spectrum at large angular scales'

### Laura Reymond, Semester thesis supervisor

*September 2023 - December 2023*

Thesis title: 'Precise computation of the angular power spectrum at large angular scales'

### Fabio Holdener, Master thesis co-supervisor

*February 2023 - August 2023*

Thesis title: 'Weak Lensing With 21cm Intensity Mapping'

### Luca Morf, Master thesis co-supervisor

*September 2022 - March 2023*

Thesis title: 'Field-level Simulations from the Effective Field Theory of Large-Scale Structures'

### Peter Bajzath, Semester project supervisor

*September 2022 - December 2022*

Thesis title: 'Investigating measurement tensions with Machine Learning emulators'

### Luis Machado Poletti Valle, Semester project supervisor

*February 2022 - May 2022*

Thesis title: 'The Integrated Sachs-Wolfe effect on the lightcone'

## RELEVANT TEACHING EXPERIENCE

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Teaching assistant for ‘Astrophysics II’  
Teaching assistant for ‘Cosmological probes’  
Teaching assistant for ‘Theoretical cosmology’

*February 2024 - September 2024*  
*September 2023 - December 2023*  
*February 2023 - May 2023*

## TALKS AND POSTERS

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Poster at ‘Future Science with CMB x LSS’

*Kyoto, March 2023*

**Delivered a fireside talk as well as a poster based on arXiv:2309.03258**

Poster at Tonale Winter school on cosmology

*Tonale, December 2022*

**Poster based on arXiv:2309.03258**

Talk at ‘Tensions in Cosmology’ conference

*Corfu, August 2022*

**Delivered a 10-minute talk on results of the paper: arXiv:2207.01501**

Talk at NBI Summer school: ‘Neutrinos here there and everywhere’

*Copenhagen, June 2022*

**Delivered a 10-minute talk on results of the paper: arXiv:2207.01501: [link](#)**

## COLLABORATION MEMBERSHIPS

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Dark Energy Spectroscopic Instrument (DESI) member

Legacy Survey of Space and Time-Dark Energy Science Collaboration (LSST-DESC) member

## PUBLICATIONS

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1. **A.Reeves**, P. Zhang, H. Zheng, A.Refregier, *Rapid and differentiable analysis using the Effective Field Theory of Large Scale Structure*, in prep., expected March 2025.  
**Contribution: concept, computational analysis and paper writing.**
2. **A.Reeves**, A.Nicola A.Refregier, *Tuning the cosmic instrument: robust cosmology through combined probes*, in prep., expected February 2025  
**Contribution: leading the project and performing the computational analysis and majority of paper writing.**
3. **A.Reeves**, A.Nicola A.Refregier, T.Kacprzak, L.F.Machado Poletti Valle, *12×2pt combined probes: pipeline, neutrino mass, and data compression*, January 2024, accepted in JCAP, arXiv:2309.03258.  
**Contribution: led the project and performed the majority of the computational analysis and subsequent writing of the paper.**
4. **A.Reeves**, L.Herold, S.Vagnozzi, B.Sherwin, E.Ferreira, *Restoring concordance with Early Dark Energy and Massive neutrinos*, April 2023, accepted in MNRAS, arXiv:2207.01501.  
**Contribution: led the project and performed the bulk of the theoretical and computational analysis as well as subsequent writing of the paper.**