

# Antonin Corinaldi

1<sup>st</sup> year PhD student in cosmology

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## Education

<b>PhD in Astronomy and Astrophysics</b> <i>Université Paris Cité</i>	2025 – 2028
<b>Post-master research year</b> (post-master professional gap year) <i>Université Paris-Saclay</i>	2024 – 2025
<b>Master's degree (M2) in Astronomy and Astrophysics</b> <i>Observatoire de Paris</i>	2023 – 2024
◦ Final grade : 15.5/20 ; final ranking : 10/33	
<b>Magistère in Fundamental Physics, Orsay</b> <i>Université Paris-Saclay</i>	2021 – 2024
<b>Scientific preparatory classes for Grandes Écoles, PCSI / PC*</b> <i>Lycée Michelet – Vanves</i>	2019 – 2021
<b>Scientific Baccalauréat</b> , highest honors (final grade : 18.71/20) <i>Lycée Montesquieu – Le Mans</i>	2019

## Research Experiences

<b>PhD thesis in cosmology</b> <i>CEA Astrophysics Department, CosmoStat team, Paris-Saclay</i>	2025 – 2028
◦ <b>Supervisors</b> : Martin Kilbinger and Sandrine Codis	
◦ <b>Name of the thesis</b> : "Uncovering the 3D cosmological tidal field of dark matter"	
<b>Post-master research internship</b> (3 months of preparation and 6 official months) <i>CEA Astrophysics Department, CosmoStat team, Paris-Saclay</i>	2024 – 2025
◦ <b>Supervisors</b> : Martin Kilbinger and Calum Murray	
◦ <b>Topic</b> : cosmology and galaxy survey science, 3D measurement of galaxy intrinsic alignment with UNIONS and Euclid, data analysis, simulation-based inference, Python programming	
◦ Member of the <b>UNIONS</b> and <b>Euclid</b> collaborations (member of Euclid's "intrinsic alignment" Key Project)	
<b>M2 research internship</b> (4 months) <i>Institut de Recherche en Astrophysique et Planétologie (IRAP), Toulouse</i>	2024
◦ <b>Supervisor</b> : Isaac Tutusaus	
◦ <b>Topic</b> : cosmology and galaxy survey science, forecasts on cosmological constraints from Euclid's future photometric galaxy surveys using 3x2pt analysis (statistical inference with weak lensing, galaxy clustering, and cross-correlations), study of the impact of photometric redshift measurement errors on cosmology, Python programming	

**M2 numerical project** (15 sessions of 3 hours)  
*Institut d'Astrophysique Spatiale (IAS), Orsay*

2023 – 2024

- **Supervisor** : Marian Douspis
- **Topic** : cosmology, characterization of galaxy cluster catalogues detected via the Sunyaev–Zel'dovich effect using artificial intelligence (artificial and convolutional neural networks), Python programming

**M1 research internship** (3 months)

2023

*Royal Observatory of Edinburgh, Scotland*

- **Supervisor** : Yan-Chuan Cai (co-supervisor : Stéphane Ilic)
- **Topic** : cosmology, creation of a numerical model for cosmic supervoid formation and theoretical prediction of the associated integrated Sachs–Wolfe effect, Python programming
- Recipient of the **IDEX excellence scholarship**

**L3 research internship** (6 weeks)

2022

*Laboratoire Irène Joliot-Curie (IJCLab), Orsay*

- **Supervisor** : Stéphane Ilic
- **Topic** : cosmology, analysis of cosmic microwave background maps and study of the impact of the epoch of reionization on constraints of the reionization parameter  $\tau$  for Simons Observatory and CMB-S4 (statistical inference), Python programming

## Skills

**Programming languages** : Python, C, C++, Fortran, HTML

**Astrophysics codes**: *CosmoSIS* pipeline (M2 internship), *Class* numerical code (L3 internship)

**Other digital tools**: *GitHub* environment, *L<sup>A</sup>T<sub>E</sub>X* (scientific report writing during L3, M1, M2 internships and projects, writing of a scientific paper), computing cluster (HPC)

**Languages** : French (native), English (C1), Spanish (B2), Italian (B2)

## Oral Presentations

**Research talks** :

- Euclid-France, 14<sup>th</sup> conference, Strasbourg, 12 min November 2025
- UNIONS meeting, Paris, 15 min October 2025
- WL-SHE Euclid meeting, Marseille (France), 15 min
- UNIONS meeting, Leiden (Netherlands), 20-minute talk on my post-master internship March 2025
- Meeting with IRAP cosmology group, Pic du Midi, 20-minute talk on my M2 internship July 2024
- IRAP internship presentations, 10-minute talk on my M2 internship May 2024
- *My internship in 180 seconds*, IJCLab, 3-minute talk on my L3 internship July 2022

**Conferences** (attendee) :

- Euclid-France, 13<sup>th</sup> symposium, CEA Paris-Saclay January 2025
- Euclid summer school “Rodolphe Clédassou”, Hendaye, student in cycle 1 and cycle 2 August 2024 and 2025  
obs (presentation of a poster in cycle 2) (1 month)
- Meeting on the combination of cosmological data from galaxy surveys, Institut d’Astrophysique de Paris June 2024
- National CMB-France symposium, Institut d’Astrophysique de Paris June 2022

**Science outreach**:

- Conference for ALCOR members, 15-minute presentation on my L3 internship December 2022

## Other professional experiences

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### Teaching

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**TD teacher** in electromagnetism and statistical physics (L3) 2026  
*Université Paris Cité*

**Private tutoring** in physics, mathematics, and chemistry for final-year high school students 2020 – 2023

### Responsabilities for the laboratory

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Member of the seminar organization committee of the Department of Astrophysics of CEA 2026

## Personal Involvement

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**Member of the French Astronomy Association (AFA)** 2024 - 2025  
*Animator in astronomy during "Paris sous les étoiles" (from June to August 2025)*  
*Volunteer at the Rencontres du Ciel et de l'Espace (November 2024)*  
*Animator "Débusquez les infox" in middle schools and libraries*

**Vice-secretary of the ALCOR association (Astronomy and Lights of the Orsay Campus)** 2023 - 2024  
*Volunteer with the association at the Fleurance Astronomy Festival (August 2022, 2023, 2024 and 2025)*

**Member of a collective for the Jacques Tati cinema in Orsay** 2023 - 2024  
*Organization of film debates*

**Cultural coordinator of the “Photon” student association** 2022 - 2023  
*Organization of cultural outings in Paris*

## Interests

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**Music:** classical guitar solo and ensemble (8 years at Le Mans Conservatory, awarded the Music Studies Certificate in 2019), folk guitar

**Sports:** competitive tennis (best ranking: 15), jogging, climbing, surfing, trail running

**Travel:** London, United States (Boston, Chicago, Los Angeles, New York), Spain (Seville), Italy, Sardinia, Sicily, Scotland (Edinburgh), Belgium (Bruxelles)

**Other hobbies:** reading, writing, philosophy, drawing

## References

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**Martin Kilbinger**, CEA Astrophysics Department, CosmoStat team, Saclay (current post-master internship supervisor)  
o email:  martin.kilbinger@cea.fr

**Isaac Tutusaus**, Institut de Recherche en Astrophysique et Planétologie (IRAP), Toulouse (M2 internship supervisor)  
o email:  isaac.tutusaus@irap.omp.eu

**Marian Douspis**, Institut d’Astrophysique Spatiale (IAS), Orsay (M2 numerical project supervisor)  
o email:  marian.douspis@universite-paris-saclay.fr

**Mathieu Vincendon**, Institut d’Astrophysique Spatiale (IAS), Orsay (M2 director)  
o email:  mathieu.vincendon@universite-paris-saclay.fr