

Guillermo Franco Abellán

Postdoctoral Researcher
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🏠 [Personal website](#)

🐙 [GitHub: GFAbellan](#)

🧪 [InspireHEP record](#)

🆔 [ORCID](#)

Research Interests

🔍 Simulation-based inference

📡 CMB & LSS data

📐 Cosmic tensions

🌌 Neutrino cosmology

🌀 Dark sector phenomenology

Impact Snapshot

23

papers & preprints

3700+

citations

14

h-index

30+

talks & seminars

3

students mentored

5

journals refereed

General Skills

🗣️ **Languages.** Speak fluently three languages: Spanish (*native*), English (C1) and French (C1).

💻 **Programming.** Expert in Python, PyTorch, C and C++, proficient in Julia, JAX and Mathematica.

⚙️ **Core tools.** Contributor of public codes CLASS, CLOELIB and SWYFT; advanced user of SBI, MONTEPYTHON, COBAYA, GET-DIST, SASHIMI, PYBIRD and PYLIANS.

🔧 **Misc.** Proficient with L^AT_EX, git, Slurm, Bash and HTML.

References

Vivian Poulin

LUPM, University of Montpellier

✉ vivian.poulin@umontpellier.fr

Christoph Weniger

GRAPPA, University of Amsterdam

✉ c.weniger@uva.nl

Tristan L. Smith

Swarthmore College

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Education

Oct. 2019 – **Ph.D. in Physics, specialising in Cosmology**, Université de Montpellier, France
Oct. 2022
Supervisors: Vivian Poulin and Julien Laval
Thesis title: *Searching for new physics with CMB precision cosmology*, [available online](#). Date of defense: July 18, 2022

Sep. 2018 – **M.Sc. in Astroparticle Physics and Cosmology**, Université de Montpellier, France
June 2019
Top grade in my graduating class (17.7/20)
Master internship: *Signatures of dark matter in the CMB*

Sep. 2013 – **B.Sc. in Physics**, Universidad de Murcia, Spain and Universität Ulm, Germany (Exchange).
June 2018
Top grade in my graduating class (8.1/10); Best Graduate Award
Collaboration Scholarship (€2k competitive research grant)
Bachelor's thesis: *An introduction to supersymmetry*

Academic positions

Nov. 2025 – **Postdoctoral Researcher** at Institut de Física Corpuscular (IFIC), CSIC-Universitat de València, Spain
current

Nov. 2022 – **Postdoctoral Researcher** at GRAPPA Institute, University of Amsterdam, The Netherlands
Sep. 2025

Research summary: Theoretical and computational cosmologist connecting particle physics models (dark sector, neutrinos) with high-precision data (CMB, LSS). During my PhD, I focused on the model side, deriving novel constraints on various Λ CDM extensions motivated by cosmic tensions. As a postdoc, I focus on the methods side, building state-of-the-art statistical inference tools for complex problems in cosmology.

Research Output and Visibility

- **23 papers** (3 collaboration, 2 preprints); **lead author on 8** and second author on 9. Over 3700 citations (1500+ excluding collaboration papers) and an h-index of 14. Published in high-impact journals including JCAP, JHEP, PRD, MNRAS and Physics Reports. Full publication list can be found [here](#).
- PRD Editor's Suggestion (single-author [article](#)), featured in APS *Physics Magazine*.
- **30+ conference talks and seminars** at international research institutions, including 4 invited conference talks. Selected talks, including slides, can be found [here](#).
- **Public Codes:** Developer of SIRENI, SWYFT-LSS (SBI codes) and four non-trivial extensions of the Boltzmann solver CLASS, see [GitHub](#) for more details.

Leadership, Service and Recognition

- Member of the **Euclid Consortium** since 2023; **paper lead** on a Key Project for testing decaying DM with Euclid DR1 data; contributor to the CLOELIB library.
- **Referee** in leading journals (A&A, JCAP, Nature Astronomy, OJA and EPJ C).
- Organizer of bi-weekly *Amsterdark* seminar series (1 year); LOC member for EuCAIF-Con 2024; co-organizer of the ISAPP PhD school *Exploring the Dark Universe* (2023).
- Handled GRAPPA's official social media accounts (2022–2025); gave a crash course on the CLASS code (2023).
- **Shortlisted** for CNRS competition 2024 (section 2).

Mentoring, Teaching and Outreach

- **Mentoring.** Supervised 1 Master student (N. Terzaghi) and co-supervised 2 PhD students (F. Zimmer, O. Savchenko), leading to three publications.
- **Teaching.** Tutored *Fundamentals of Physics for Biologists* (Undergrad course, 64h); teaching assistant for 2 Master's courses: *Student Seminar Theoretical Physics* (24h) and *Academic Skills for Research* (40h).
- **4 public talks:** *Pint of Science Festival*, Valencia (2026); Journée des chercheurs non-permanents, LUPM Montpellier (2022); invited talk for physics undergraduates, U. Murcia (2021); *PhD Pub*, Montpellier (2019).