# Bastien Carreres | Ph.D

+1 9196721767 • bastien.carreres@duke.edu
bastiencarreres.github.io

## Research Experience

- 2023-Now **Postdoctoral researcher**, *Duke University*, Durham, with D. Scolnic.
  Cosmology with SNe Ia, survey simulations, peculiar velocities
- 2020-2023 **PhD candidate**, *CPPM*, Marseille, with Drs D. Fouchez, B. Racine and J. E. Bautista.
  Cosmology with SNe Ia, growth rate measurement with ZTF data

## Education

- 2020-2023 **PhD - Astrophysics & Cosmology**, *ED 352, Aix-Marseille Université*, Marseille.
  Thesis project: *Measuring the growth rate of structures with type Ia supernovae.*
- 2019-2020 **Master's degree 2nd year - Subatomic Physics and Cosmology**, *UFR PhiTEM, Université Grenoble-Alpes*, Grenoble.
  Graduated with honors
- 2019-2020 **Magister of Physics 3rd year**, *UFR PhiTEM, Université Grenoble-Alpes*, Grenoble.
  Graduated
- 2018-2019 **Master's degree 1st year - Physics, Fundamental Research**, *UFR PhiTEM, Université Grenoble-Alpes*, Grenoble.
  Graduated with honors
- 2018-2019 **Magister of Physics 2nd year**, *UFR PhiTEM, Université Grenoble-Alpes*, Grenoble.
  Graduated
- 2017-2018 **Bachelor's degree - Fundamental Physics**, *Faculté des Sciences, Université de Montpellier*, Montpellier.
  Graduated with high honors

## Publications

- **Carreres et al. 2023.** Growth-rate measurement with type-Ia supernovae using ZTF survey simulations. Published in A&A. DOI: `https://doi.org/10.1051/0004-6361/202346173`. Preprint available at `https://arxiv.org/abs/2303.01198`.
- **Carreres et al. 2024.** ZTF SN Ia DR2: Peculiar velocities impact on the Hubble diagram. Preprint available at `https://arxiv.org/abs/2405.20409`

## Schools & Internships

- August 2020-21-22 **Euclid Summer School - 2 weeks / year lectures**, *Euclid France*, Hyères, Biarritz and Banyuls.
  Subject: Science of futur cosmological surveys
- March-July 2020 **Pre-Thesis Internship**, *Centre de Physique des Particules de Marseille*, Marseille.
  Subject: Cosmology with type Ia supernovae
- May-June 2019 **Master's degree 1st year Internship**, *Laboratoire de Physique Subatomique et Cosmologie*, Grenoble.
  Subject: Search for new particles that decay into top-antitop pair
- June 2017 **OCEVU summer school**, *Labex OCEVU*, Montpellier.
  One week of seminars and one week-end of observations at the *Haute-Provence* Observatory

## Responsibilities, Teaching & Outreach

- 2021-2023: **Co-organisation** of the CPPM cosmology group journal club
- 2021-2022: **Co-organisator** & **Volunteer** for the CPPM participation at ***Fête de la Science*** at Marseille Townhall
- **Graduate Teaching Assistant** (64 hours / year) during PhD at Aix-Marseille University
- **Outreach website** co-created with L. Vacher (https://yolonomy.github.io)
- 2016-2017: **Maths tutoring** for high-school students

## Fellowship

- **PhD fellowship** Aix-Marseille University ED 352, 3 years contract
- **LSSTC Enabling Science Program Award 2021**, 5000$ award

## Talks & Posters

- Poster "Peculiar velocities with SNe Ia" at DESC Meeting 2022 at University of Chicago
- Poster "Peculiar velocities with SNe Ia" + proceedings at Rencontres de Moriond 2022
- Talk "Growth rate with Type Ia Supernovae" at LSST France 2022
- Multiple talks at ZTF France (Lyon, Marseille, Clermont-Ferrand), ZTF SN1a (Stockholm) and ZTF international (Paris) collaboration meetings.

## Skills

- **Programming languages:**
  - **Python**: Advanced
  - **C/C++**: Basic
  - **HTML/CSS**: Beginner
- **Cosmology software and library**: `CAMB`, `Class`, `SNANA`, `SNCosmo`
- **Software and library**: `git`, `VSCodium`, `conda`, `MPI`, `dask`
- **Languages:**
  - **French**: Native
  - **English**: Fluent
  - **German**: Beginner