

Julien Froustey

PHD STUDENT — INSTITUT D'ASTROPHYSIQUE DE PARIS
86 avenue de Choisy, 75013 Paris, FRANCE

☎ (+33) 6 24 31 17 12 | ✉ julien.froustey@iap.fr | 🏠 www.iap.fr/useriap/froustey | 📺 [julien-froustey](#) | 🐦 [JulienFroustey](#)

Education

PhD in Theoretical Physics

[Institut d'Astrophysique de Paris](#)

“THE UNIVERSE AT THE MeV ERA: NEUTRINO EVOLUTION AND COSMOLOGICAL OBSERVABLES”
under the supervision of Dr. Cyril Pitrou.

2019 –

Agrégation de physique-chimie option physique

[Sorbonne Université](#)

RANK 1/78

2018 – 2019

High-level competitive examination for teachers, with a major in physics and chemistry.

Master 2 ICFP – Theoretical Physics

[Ecole Normale Supérieure](#)

INTERNATIONAL CENTRE FOR FUNDAMENTAL PHYSICS

2017 – 2018

- *Courses taken included:* Quantum field theory, General relativity, Advanced statistical physics, Numerical physics, Invariances in physics and Group theory, Renormalization group theory, Cosmology, String theory.
- Obtained with First Class Honors (18.04/20).

Master 1 ICFP

[Ecole Normale Supérieure](#)

INTERNATIONAL CENTRE FOR FUNDAMENTAL PHYSICS

2016 – 2017

- *Courses taken included:* Introduction to General relativity, Fundamental structure of matter, Cosmology, Quantum fluids, Statistical physics, Advanced mathematics for physicists.
- Obtained with First Class Honors (17.68/20).

B.Sc. in Physics

[Ecole Normale Supérieure,](#)
[Université Paris-Diderot](#)

LICENCE FIP (“FORMATION INTERUNIVERSITAIRE DE PHYSIQUE”)

2015 – 2016

- *Courses taken included:* Equilibrium statistical physics, Quantum mechanics, Hydrodynamics, Special relativity and Electromagnetism, Solid state physics, Analytical mechanics, Introduction to Astrophysics.
- Obtained with First Class Honors (18.98/20).

Publications

- [3] **J. Froustey and C. Pitrou**, *Primordial neutrino asymmetry evolution with full mean-field effects and collisions*, arXiv:2110.11889.
- [2] **J. Froustey, C. Pitrou and M.C. Volpe**, *Neutrino decoupling including flavour oscillations and primordial nucleosynthesis*, JCAP **12**, 015 (2020), [2008.01074].
- [1] **J. Froustey and C. Pitrou**, *Incomplete neutrino decoupling effect on big bang nucleosynthesis*, Phys. Rev. D **101**, 043524 (2020), [1912.09378].

CONFERENCE PROCEEDINGS

- [1] **J. Froustey**, *Precision calculation of neutrino evolution in the early Universe*, J. Phys.: Conf. Ser. **2156**, 012013 (2021), [2110.11296].

Presentations

- 02/22 **Journal-club + Informal seminar**, “Neutrino evolution in the early Universe” [TTK, Aachen](#)
- 02/22 **LAPTh seminar**, “Primordial neutrino asymmetry evolution in the early Universe” [Virtual](#)
- 12/21 **Café-club GECCO**, “A precision calculation of neutrino decoupling” [Virtual](#)
- 10/21 **Sydney-CPPC seminar**, “Primordial neutrino asymmetry evolution in the early Universe”, [Video](#) [Virtual](#)
- 08/21 **TAUP 2021**, “Precision calculation of neutrino evolution in the early Universe”, [Video](#) [Virtual](#)
- 06/21 **WIN 2021**, “Precision calculation of neutrino evolution in the early Universe”, Poster [Virtual](#)

04/21	Workshop: Latest Advances in the Physics of BBN and Neutrino Decoupling , Invited Speaker	<i>Virtual</i>
12/20	ICAP meeting ,	<i>Virtual</i>
12/20	APC Theory seminar , Université de Paris	<i>Virtual</i>
11/20	GDR Neutrino meeting , WG 3: Neutrinos in the Universe	<i>Virtual</i>
11/20	LUTH seminar , Observatoire de Paris	<i>Virtual</i>
10/20	GReCO seminar , Institut d'Astrophysique de Paris	<i>IAP, Paris</i>

Experience

INTERNSHIPS

Graduate (M2) Research internship

*Institut d'Astrophysique de Paris
(Paris, France)*

"NEUTRINO SPECTRAL DISTORTIONS IN THE EARLY UNIVERSE"
supervised by Dr. CYRIL PITROU.

Apr. 2018 – Jun. 2018

Graduate (M1) Research internship

*University of British Columbia
(Vancouver, Canada)*

"DYNAMICS OF VORTICES IN 2D BOSE SUPERFLUIDS"
supervised by Pr. P.C.E. STAMP.

Feb. 2017 – Jul. 2017

TEACHING ACTIVITIES

2020–2021 **Teaching assistant**, Teaching students taking the Agrégation competitive exam in physics.

*Sorbonne
Université, ENS-PSL*

2020–2021 **Teaching assistant**, *Mechanics-Physics* and *Waves and Electromagnetism* courses.

Sorbonne Université

2016–2018 **Oral examiner**, Training for oral examinations in physics in the classes of Professors A. Perrin, N. Schlosser and J. Llodra-Perez.

*Lycée
Louis-le-Grand*

Skills

LANGUAGES

French, Mothertongue

English, Fluent

Spanish, Written and spoken

IT SKILLS

Intermediate, Mathematica, Python

Advanced, Microsoft Office, \LaTeX

Interests and Activities

RESPONSIBILITIES

2021-2022 **Institut d'Astrophysique de Paris**, PhD representative.

2019-2020 **Institut d'Astrophysique de Paris**, Organiser of a series of PhD seminars in an informal setting.

ASSOCIATIONS

2016 **Sportive association**, Ecole Normale Supérieure (Treasurer).

2018–2021 **Festivities Committee**, Bias, 40170 France (Treasurer).

LEISURE

Music, Trumpet player in amateur marching bands and orchestra.