

Pauline Zarrouk | CV

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Date and place of birth: 24/09/1991, Villepinte (93)

Formation

- **CNRS Researcher** October 1st 2020
○ *Section 1 IN2P3 - LPNHE*
- **PhD, Astroparticles and Cosmology** 2015–2018
○ *DPhP, Irfu, CEA-Saclay, Paris-Saclay (Paris Sud), ED576*
PhD viva on October 1st 2018 with a jury composed of Francis Bernardeau, Shaun Cole, Françoise Combes, Jean-Paul Kneib, Filippo Vernizzi, Martin Kilbinger and Etienne Burtin
- **Magistère in Fundamental Physics** 2015
○ *Paris Sud, France, with Honor*
- **Master 2 Nuclei Particles Astroparticles and Cosmology** 2014–2015
○ *Paris Sud, France, with Honor*
- **Licence in Fundamental Physics** 2012–2013
○ *Paris Sud, France, with Honor*
- **Classes préparatoires PCSI/PC** 2009–2012
○ *Lycée Lavoisier, Paris, France*
- **High school degree in Sciences and Foreign Language** 2009
○ *Lycée Schweitzer, Le Raincy (93), France, mention with Distinction*

Recherche

Professional experiences

- **PDRA at Institute for Computational Cosmology (ICC, Durham)** Jan. 2019–Sept. 2020
○ *Research team: S. Cole, P. Norberg, C. Baugh, B. Li, C. Frenk*
Large-scale structures with DESI
- **2-month visit at Center for Astrophysics (CfA, Harvard)** Nov.–Dec. 2017
○ *Advisor: D. Eisenstein*
Exploiting information by correlating photometric and spectroscopic datasets
- **PhD at DPhP, Irfu, CEA-Saclay** Oct. 2015–Nov. 2018
○ *PhD advisor: E. Burtin*
Clustering analysis with the SDSS-IV eBOSS quasars and cosmological implications
- **M2 internship at DPhP, Irfu, CEA-Saclay** Mars–June 2015
○ *Supervisor: E. Burtin*
Measurement of the correlation function of emission line galaxies with the MultiDark simulation for eBOSS
- **M1 internship at IAR, La Plata, Argentine** Mars–June 2014
○ *Supervisor: G. Romero*
Study of the effect of turbulence on the propagation of cosmic rays inside molecular clouds
- **L3 internship at DPhP, Irfu, CEA-Saclay** June–mid July 2013
○ *Supervisor: P. Schwemling*
Study of the relative alignment of ATLAS detectors using muons

Invitations to international conferences

Since July 2021, about 25 talks including 15 invited talks to international conferences and seminars.

- **DESI BGS: from target selection to scientific analyses, Waterloo Astro Seminar** mars 2021
○ *Remote*

- **DESI BGS: from target selection to preliminary clustering properties, AAS 2021** January 2021
Remote
- **Galaxy-halo connection with quasars, workshop** March 2020
Innsbruck, Austria
- **The DESI Bright Galaxy Survey, CosmicFlows conference** February 2020
Stellenbosh, South Africa
- **Structure growth measurements with eBOSS, AAS 2020** January 2020
Honolulu, Hawaii
- **Cosmologie avec les quasars eBOSS, SF2A** July 2018
Bordeaux, France
- **eBOSS cosmological analysis, Consistency of Cosmological Datasets** May 2018
Cambridge, UK
- **eBOSS cosmological analysis, Rencontres de Moriond** March 2018
La Thuile, Italy

Other professional experiences

Teaching

- Travaux Laboratory work in Physics, 1st year** jan–mars 2020
Physics Department, Durham University
- Teaching contract during the PhD, Paris-Saclay University** 2016/2017 and 2015/2016
Lectures in optics and modern physics, 1st-year students

Mentoring

- **Supervision of PhD student Svyatoslav Trusov, LPNHE, Paris** October 2021 – 2024
Fellowship Jean-Pierre Aguilar of Fondation CFM
PhD subject: Cosmological analysis of the DESI data to constrain general relativity and modified gravity models
- **Supervision of undergraduate student (Master 1) Elisa Russier** April – July 2021
Characterisation of the first DESI BGS data and preliminary clustering analysis
- **Supervision of undergraduate student (Master 2) Svyatoslav Trusov** March – July 2021
Multi-tracer technique for the DESI BGS
- **Co-supervision of PhD student Carolina Cuesta-Lazaro, ICC, Durham** Jan. 2019 – Sept. 2022
Modelling the small-scale clustering
- **Co-supervision of PhD student Omar Ruiz-Macias, ICC, Durham** Jan 2019 – July 2021
Design of the DESI Bright Galaxy Survey target selection
- **Supervision of undergraduate students (L2) Alexis Vrignon and Capucine Paboeuf, CEA-Saclay** Oct 2018
First research experience

Responsibilities for the community

- **Reviewer for MNRAS** Jan 2021 -
Monthly Notices of the Royal Astronomical Society (MNRAS)
- **Co-convenor of the Key Project "Full-Shape analysis" with DESI 1-year data** Oct 2020 -
DESI Collaboration
- **RPER: Member of the organising committee** Jan 2020 –
2021 Physics-Industry-Research meeting
- **Co-convenor of the Bright Galaxy Survey working group** Sept 2019 – 2020
DESI collaboration
- **DESI UK: member of the organising committee** Oct 2019
DESI UK meeting, DESI representative for Durham
- **Organiser of the DESI group meeting** Jan 2019 – April 2021
Institute for Computational Cosmology, Durham

- **eBOSS: member of the organising committee** Dec 2018
◦ *eBOSS collaboration meeting*
- **SFP: Member of the organising board** 2016–2018
◦ *French Society of Physics (SFP)*
- **RPER: Member of the organising committee** Nov 2015–March 2017
◦ *2017 Physics-Industry-Research meeting*

Outreach

- **The upcoming challenges of the lab: A survey of the dark side of the universe** June 2021
◦ *50-year anniversary of LPNHE - IN2P3*
- **Invited talk at Festival d’Astronomie du Liban** May 2021
◦ *Remote*
- **Member of the scientific committee of the Festival d’Astronomie de Fleurance** Jan. 2021
◦ *French Festival of Astronomy*
- **Invited talk at Festival Atmosphères de Courbevoie** Oct. 2020
◦ *NO PLAN B: one univers, one planet, one ecosystem, several researchers*
- **Invited talk at the 80-yr anniversary of CNRS at IAP** June 2019
◦ *Nuit blanche de l’astronomie*
- **Invited talk at Festival d’Astronomie de Fleurance, Gers** Aug. 2019
◦ *Interview pour France Culture, Youtube: My career, My research*
- **Co-founder and responsible of the project Exoplanètes : le Jeu** 2012–
◦ *Board game on exoplanets*
- board game created in 2012 during an [outreach course at Orsay University](#) by A. Bordas, D. Chuard et P. Zarrouk
- Laurate of the 2017 Saclay University grant [Coup de Pouce](#) (5000€)
- Support by the communication team of de Irfu and CEA (4000€)
- Design, production and delivery of 250 copies to schools, laboratories and museums
- **Member of the scientific committee 'Life in the Universe'** March–Dec. 2018
◦ *Touring exhibition organised by the association S[cube], Essonne (91)*
- **God-mother and invited talk at Festival d’Astronomie de Fleurance** Aug. 2017
◦ *Interview pour France Culture*
- **Invited talk at Palais de la Découverte, Paris** 2015–2018
◦ *Science week*

Awards and grants

- **Falling Walls Lab Winner 2021** 2021
◦ *LPNHE News*
- **Laureate 2018 L’Oréal-Unesco For Women in Science** Oct. 2018
◦ *CEA press release - 15000€*
- **2018 PhD prize from cluster of excellence P2IO** Oct. 2018
◦ *Physique des 2 Infinis et des Origines (P2IO) Lauréats 2018 - 500€*
- **2017 Outreach Prize for promoting spatial sciences, category Junior** déc 2017
◦ *Association Les Amis de la Cité de l’Espace*

References

- Etienne Burtin (PhD advisor) - [etienne.burtin@cea.fr]
- Pr. Shaun Cole (PDRA advisor) - [shaun.cole@durham.ac.uk]
Director of the Institute for Computational Cosmology, Durham (UK)
- Pr. Daniel Eisenstein (DESI spokesperson 2014-2020) - [deisenstein@cfa.harvard.edu]
Chair of the Harvard University Department of Astronomy (US)