Corentin **Cadiou**
PhD student in Astrophysics at Institut d'Astrophysique de Paris (IAP)

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Science Interests

Astrophysics
galaxy formation
cosmic web
numerical simulations
cosmology

Languages

French – native
English – fluent
(114/120 at TOEFL)
German – medium

Programming

– HPC –
RAMSES
MPI, OpenMP, Fortran,
C++

– Data analysis –
yt
Python, NumPy, Linux

– General skills –
Linux, bash, javascript
LaTeX

Education

2016–2019	**PhD in Astrophysics**	Sorbonne Université & IAP, Paris France
	Defense expected in September 2019.	
2015–2016	**Master's degree in Astrophysics**	IAP, Paris Observatory & École Normale Supérieure (ENS), France
	Specialization in cosmology and numerical astrophysics, *summa cum laude*.	
2015	**Diploma of the ENS**	ENS, Paris, France
	Physics and Computer Sciences.	
2012–2014	**Bachelor's degree, Physics**	ENS, Paris, France
2012	Admitted to the ENS (most selective higher education school in France), *summa cum laude*.	
2010–2012	Preparatory school in PCSI/PC*	Lycée Sainte-Geneviève, Versailles, France
	Two-year intensive program in advanced mathematics and physics to prepare the national competitive exam for entry to engineering schools. Equivalent to two years of Bachelor's degree, *magna cum laude*.	
2010	French Baccalauréat (High school diploma), *summa cum laude*	Saverne, France

Research experience

2016–2018	**Member of the project SPIN(E)**	Agence Nationale de la Recherche (ANR), France
	Funded by the French ANR (PI : C. Pichon).	
2016–2019	**Post-graduate research**	IAP, Paris, France
	"The Origin of the Hubble Sequence" supervisors: Christophe Pichon and Yohan Dubois, funded by the ENS.	
2016	**Kavli Summer Program in Astrophysics**	UCSC, California, USA
	"Evolution of the atmosphere of close-by Kepler exoplanets", supervisors: James Owen and Fred Adams.	
2014	**Research internship**	UCSC, California, USA
	"Angular momentum mixing processes in red giants to explain the slow-rotating cores problem", supervisor: Pascale Garaud.	

Awards

2018	**NumFOCUS New Contributor Award**
	Awarded for developing and extending the RAMSES frontend of the yt project, a Python package for analyzing and visualizing astrophysical simulations.
2017–now	**yt team member**
	Nominated for continuous and significant contributions to the yt project.
2016–2019	**ILP fellowship**
	5000€ grant per annum for research expenses, including travel.
2012–2019	**ENS scholarship & ENS doctoral fellowship**
	Prestigious full stipend awarded nationwide to 20 fellows.

Publications

2018   **Accurate tracer particles of the baryons dynamics in the adaptive mesh refinement code Ramses**   Submitted to A&A
        C. Cadiou, Y. Dubois & C. Pichon, arXiv:1810.11401
        About: A new numerical method to track the accretion of baryons onto galaxies.
        Contribution: Main author.

2018   **Galaxies flowing in the oriented saddle frame of the cosmic web**   Submitted to MNRAS
        K. Kraljic, C. Pichon, Y. Dubois, S. Codis, **C. Cadiou**, et al., arXiv:1810.05211.
        About: The effect of the cosmic web on galaxy formation in numerical simulations.
        Contribution: Co-author of the theory section.

2017   **Galaxy evolution in the metric of the Cosmic Web**   MNRAS
        K. Kraljic, S. Arnouts, C. Pichon, C. Laigle, S. de la Torre, D. Vibert, **C. Cadiou**, et al., arXiv:1710.02676
        About: The effect of the cosmic web on galaxy formation in observations.
        Contribution: Provided theory part.

2017   **How does the cosmic web impact assembly bias?**   MNRAS
        M. Musso, **C. Cadiou**, C. Pichon, S. Codis, K. Kraljic & Y. Dubois, arXiv:1709.00834
        About: The effect of the cosmic web on dark matter halo formation, theoretical.
        Contribution: Co-author of the paper.

Talks and Posters

Seminars and workshops

Sept. 2016	Ramses User Meeting	Lyon, France
May 2017	CITA journal club	Toronto, Canada
Sept. 2017	Ramses User Meeting	Nice, France
Sept. 2017	SPIN(E) ANR Meeting	Agay, France
Nov. 2017	KIAS journal club	Seoul, South Korea
April 2018	CRAL journal club	Lyon, France
May. 2018	SPIN(E) ANR Meeting	Edinburgh, UK
Sept. 2018	West Coast Swings workshop	Perth, Australia

Internal seminars

2016, 2017	ED127 PhD day	Paris, France
2016, 2017	IAP PhD day	Paris, France
2016, 2017	YMCA, IAP student seminar	Paris, France

Posters

Sept. 2018	Analytics, Computation and Inference in Cosmology	Cargese, France
Oct. 2018	Highlights & prospects for numerical astrophysics in France (Astrosim)	Lyon, France

Teaching

2016–2019   **Teaching Assistant**   Sorbonne Université, Paris, France
             Courses included: concept and methods of Physics at B.Sc. level (192 hours).
             Graded all written work, oral and final written exams and assisted with labs.

Responsibilities and outreach

2016–2017 Organizer of the IAP pre-seminar.
Weekly meeting with the invited speaker with all the PhD students.

2018 Organizer of the "Mystery Science Picture" (MSciPic)
Monthly release of a scientific picture for public outreach for the Société Française de Physique (SFP).

2017–2019 Journée de la Science (Open House day)
Yearly public outreach event about general astronomy at IAP and Sorbonne Université.

Other Experiences

2015 6-months internship in an IT company   Linagora, Paris, France
Development of a real-time peer-to-peer collaborative text editor.

2015 Ranked 2/130th team at the **Google Hashcode** programming competition. Paris, France

2012–2013 Team member of the ENS student association.   Paris, France

2008–now Member of the BECD (Bénin Europe Coopération et Développement) an NGO to foster development in Benin.   France & Benin