

# Curriculum Vitæ

Florent Leclercq  
[www.florent-leclercq.eu](http://www.florent-leclercq.eu)

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**Personal Information** Born on January 17th, 1988 in Neuilly-sur-Seine (Hauts-de-Seine, France).  
French citizen

**Contact** Imperial Centre for Inference and Cosmology,  
Imperial College London, Astrophysics,  
1012 Blackett Laboratory, Prince Consort Road, London SW7 2AZ, United Kingdom  
*Web:* [www.florent-leclercq.eu](http://www.florent-leclercq.eu) | *E-mail:* [florent.leclercq@polytechnique.org](mailto:florent.leclercq@polytechnique.org)  
*Tel:* +44 (0)20 7594 7532 | *Mobile:* +44 (0)793 8242 904 · +33 (0)630709589  
ORCID ID [0000-0002-9339-1404](https://orcid.org/0000-0002-9339-1404) | [ARXIV](#) | [NASA ADS](#) | [Inspire HEP](#) | [RESEARCHGATE](#)

**Research interests** **Cosmology** – the large-scale structure of the Universe: reconstruction and analysis of the morphology and formation history of the cosmic web, as probed by galaxy surveys; non-linear cosmological structure formation; Bayesian and information-theoretic methods in cosmology; link with high energy physics.

**Academic Employment** 2017–. **Research Fellow** – [Imperial Centre for Inference and Cosmology, Imperial College, London, UK.](#)

2015–2017. **Senior Research Associate** – [Institute of Cosmology and Gravitation, University of Portsmouth, Portsmouth, UK.](#)

2012–2015. **PhD Student** – [Institut d’Astrophysique de Paris \(IAP, UMR 7095 CNRS–UPMC\), Paris, France.](#)

Postgraduate education from [École Doctorale d’Astronomie et d’Astrophysique d’Île-de-France \(ED 127\), Paris, France,](#) and [Université Pierre et Marie Curie, Paris, France.](#)

**Thesis:** *Bayesian large-scale structure inference and cosmic web analysis.*

**Advisor:** [Prof. Benjamin Wandelt](#), professor and international chair of theoretical cosmology at the UPMC, director of the [Lagrange Institute \(ILP\)](#)

**Graduation date:** September 24th, 2015.

**Defence committee:** [Prof. Bertrand Laforge](#) (*président*), [Prof. Benjamin Wandelt](#) (*directeur de thèse*), [Prof. Oliver Hahn](#) (*rapporteur*), [Prof. Alan Heavens](#) (*rapporteur*), [Prof. Ofer Lahav](#) (*examineur*), [Prof. Will Percival](#) (*examineur*), [Prof. Rien van de Weygaert](#) (*invité*), [Prof. Matías Zaldarriaga](#) (*invité*).

**Post-master courses:** complementary education in various specialised topics including astrophysics, theoretical cosmology, numerical simulations and high-performance computing.

**Education** 2011–2012. [École polytechnique, Palaiseau, France](#) and [ETH, Zürich, Switzerland](#)

Postgraduate degree (Master 2): *High Energy Physics* joint master program (Ranked first, GPA: 4.29)

Theoretical and experimental education in high energy physics: theoretical and observational cosmology, particle and astroparticle physics, the standard model of electroweak interactions and its supersymmetric extensions, strong interactions and quantum chromodynamics, general relativity and quantum gravity (string theory), tools and methods of experimental physics.

2008–2011. [École polytechnique, Palaiseau, France](#)

“*Ingénieur Polytechnicien*” program: high-level multidisciplinary scientific education, with specialisation in particle physics and astrophysics. A human, military and sportive training forms an integral part of the curriculum.

- 2010-2011, Third year: “From particles to stars” master program (GPA: 3.93)
- 2009-2010, Second year (GPA: 3.54)

- 2008-2009, First year (GPA: 4.03)

2005–2008. [Lycée Henri IV](#), Paris, France

Classes préparatoires aux Grandes Écoles, voie MP: preparatory years for nationwide competitive examination to the elite French *Grandes Écoles* for scientific studies.

2005. [Baccalauréat Scientifique](#). French secondary school diploma in sciences.

Diploma awarded with very high honours.

### Research Internship Projects

02/2012–08/2012. [Institut d’Astrophysique de Paris](#), Paris, France

*Approaching Non-Linear Cosmic Structure Formation*, under the supervision of [Prof. Benjamin Wandelt](#).

04/2011–07/2011. [Institut d’Astrophysique de Paris](#), Paris, France

*Dark Matter and Stars*, under the supervision of [Dr. Fabio Iocco](#).

### Grants & Fellowships

2017. [Imperial College Research Fellowship](#) (2017–2021). Total value: approx. **£ 210k**, including a research and travel grant of **£ 28k**.

21 fellowships awarded among all disciplines in 2017, 2 in physics.

2015. Senior Research Associate appointment (2015–2018). Total value: approx. **£ 105k**.

Position funded by the European Research Council grant *Darksurvey*.

2015. [CITA National Fellowship](#) (declined).

2012. [AMX PhD Student Fellowship](#) (2012–2015). Total value: approx. **100 k€**.

Grant specifically aimed at former École polytechnique “*Ingénieur*” alumni. 40 fellowships awarded among all disciplines in 2012.

### Awards & Honours

2015. Very honourable mention for my PhD thesis and defence. Unanimous congratulations from the jury for the “exceptionally strong scientific content of this PhD, which pushes forward the state of the art”.

2011. Very honourable mention for my involvement in the year-long student seminar on Quantum Field Theory at the [Centre de Physique Théorique](#) (CPHT, UMR 7644 École polytechnique–CNRS), directed by [Prof. Christoph Kopper](#).

2010. Second prize for the scientific project (*Projet Scientifique Collectif*) of the École polytechnique, out of 80 projects.

### Research Supervision Experience

06/2017–. Mentor, [Wolfgang Enzi](#) (master student supervised by [Jens Jasche](#) at the [Excellence Cluster Universe](#), Garching).

Project: *The Approximate Bayesian Computation of power spectrum reconstruction with galaxy surveys*.

03/2017–07/2017. Supervisor, [Baptiste Faure](#) (research intern, third-year student at the [École polytechnique](#), equivalent to French master level M1).

Project: *Cosmological simulations: towards a massively parallel algorithm*.

### Teaching Experience

03/2017. [Institute of Cosmology and Gravitation](#), [University of Portsmouth](#), Portsmouth, UK.

*Cosmology with Bayesian statistics and information theory*: advanced lectures for PhD students (6 hours).

2012–2013. [Université Pierre et Marie Curie](#), Paris, France

Teaching assistant in the [department of physics](#) (72 hours):

- Experimental wave optics
- Physics lectures (thermodynamics and wave physics) for biologists

2011–2012. [École polytechnique](#), Palaiseau, France

Teaching assistant in the [department of physics](#) (60 hours). In charge of tutoring undergraduate students in Quantum Mechanics.

10/2008–04/2009. [Inspection académique des Pyrénées-Orientales](#), Perpignan, France

Eight-month pedagogy and leadership training, a part of the [École polytechnique](#) curriculum. In charge of the development and coordination of the scientific training of primary school teachers. In charge of helping teachers to develop good practice examples for teaching science.

## Academic Service

### Peer reviewing

Referee for [A&A](#) (2016–), [Galaxies](#) (2016–), [JCAP](#) (2017–), and [ApJ](#) (2017–).

### Committees

2017–2018. Member of the Scientific Organizing Committee (SOC) of [COSMO21: Statistical Challenges in 21st Century Cosmology](#) (May 23–25 2018, Valencia, Spain).

### Institutional activities

2017–. Representative of Imperial College Astrophysics at the [London Institute of Cosmology](#).

2014–2015. Representative of PhD students at the IAP Laboratory Council.

### Meeting organisation

2017–. Organiser of the monthly [London Cosmology Discussion Meeting \(LCDM\)](#).

2014. Organiser of the weekly meeting between students and the IAP seminar speaker (*student pre-seminar*).

2012–2013. Organiser of the weekly student seminar at the Institut d’Astrophysique de Paris ([YMCA@IAP](#)).

## Memberships Consortia

[The Aquila Consortium](#) for Bayesian large-scale structure inference (founding member)

### International Collaborations – Institutional Memberships

[The Extended Baryon Oscillation Spectroscopic Survey \(eBOSS\)](#)

[The Dark Energy Survey \(DES\)](#)

### Associations

[Société Française d’Astronomie et d’Astrophysique \(SF2A\)](#)

[American Physical Society, Division of Astrophysics \(APS/DAP\)](#)

## Public Engagement

### Press releases and media coverages

2017. Media coverage of [Leclercq et al. 2017](#):

- Main contact for the press release from the University of Portsmouth (“[Cosmologists produce new maps of dark matter dynamics](#)”), covered by [phys.org](#) among others.
- Author of the announcement on the website of INSU (“[De nouvelles cartes des flots de matière noire dans notre voisinage cosmique](#)”, in French).
- Featured in Discover magazine (“[Charting the unseen sky](#)”).
- Interviewed by Pan European Networks (“[A light in the dark](#)”).
- Main contact for the science highlight of the Institut d’Astrophysique de Paris (“[The origin of the large-scale structure of the Universe and dark matter flows in our cosmic neighborhood](#)”).

2012. Media coverage of [Iocco et al. 2012](#):

- Involved in a press article featured by [PhysOrg.com](#) (“[Stars containing dark matter should look different from other stars](#)”).

### Diffusion of scientific knowledge and scientific communication

2017–2018. Contributor to [Entropy](#), a collaboration of artists and scientists organising out-reach demonstrations telling the cosmic story of creation: in charge of the translation of the

script into French.

2012–. Regular participant in outreach events and science festivals.

**Languages** French: native

English: fluent (C2)

Spanish, Japanese: basic notions (A1)

**Computer Skills** Operating systems: Linux (Ubuntu), Windows

Software: most common office software products, image processing

Programming: C, C++, Python, Java, HTML, PHP, SQL

Parallel and GPU programming: OpenMP, MPI, CUDA

Scientific tools:  $\text{\LaTeX}$ , Beamer, Matplotlib, GNUPlot, Mathematica

Astrophysical and cosmological simulations

Statistical methods for inference in highly dimensional parameter spaces, Markov Chain Monte Carlo techniques for sampling, processing of large data sets

**Interests & Activities** **Sports:** fencing (12 years' experience), artistic fencing, and hiking

Member of an artistic fencing and theatrical company, *les Corsaires de La Ciotat*. Regularly organising and participating in artistic fencing shows.

Former president of the association for artistic fencing at the École polytechnique. Former member of the École polytechnique fencing team.

President of the 18th International Fencing Challenge of the École polytechnique (200 competitors, 3 days): in charge of an organising team of about 30 students for a budget of 25 k€.

**Literature:** interested in fantasy and historical fiction.

**Creative writing**

**Travels:** 29 countries visited in the world.