

Arthur Loureiro

RESEARCH FELLOW · ASTROPHYSICS & COSMOLOGY

University College London, Physics & Astronomy Department, London, UK

✉ arthur.loureiro@ucl.ac.uk | 🏠 arthurloureiro.github.io | 📧 arthurloureiro | 🐦 @cosmonist

Research Experience

University College London

London, United Kingdom

RESEARCH FELLOW

Mar. 2020 - PRESENT

UCL Research Fellow working with Dr. Benjamin Joachimi on bayesian methods for cosmological galaxy surveys such as the Euclid Satellite.

Imperial College London

London, United Kingdom

POST-DOCTORAL RESEARCH ASSOCIATE (CURRENTLY VISITING RESEARCHER)

Dec. 2019 - Mar. 2020

PDRA working with Prof. Alan Heavens and Prof. Andrew Jaffe on Bayesian Hierarchical Models for Cosmic Shear on the sphere.

University College London

London, United Kingdom

POST-DOCTORAL RESEARCH ASSISTANT

Dec. 2018 - Dec. 2019

Euclid PDRA working with Dr. Benjamin Joachimi on pipeline development, testing, and validation for Weak Lensing power spectra.

Education

University College London

London, United Kingdom

PHD IN ASTROPHYSICS

2015 - 2019

Advisors: Dr. Filipe Abdalla and Prof. Ofer Lahav

Thesis: The Universe in Harmonic Space: Neutrinos and Dark Energy

University of Sao Paulo

Sao Paulo, Brazil

MASTERS IN MATHEMATICAL PHYSICS

2013 - 2015

Advisor: Prof. L. Raul Abramo

Thesis: Galaxy Power Spectrum: A Monte-Carlo Approach

Université de Montréal

Montréal, Canada

UNDERGRADUATE EXCHANGE

2012

Exchange program as a bachelor student in Physics under the Science without Borders Scholarship.

Universidade Federal do Rio Grande do Sul

Porto Alegre, Brazil

UNDERGRADUATE DEGREE IN PHYSICS WITH EMPHASIS IN ASTROPHYSICS

2010 - 2013

Advisor: Prof. Silvio R. Dahmen Dissertation: Relativistic Thermodynamics applied to Cosmological Models

Skills & Professional Services

Programming	Advanced Python, Jupiter Notebook, and Shell/TCSHELL; intermediate C/C++, Fortran, Mathematica, SQL and HPC.
Cosmological Codes	CLASS, Hi-CLASS, CAMB, CosmoMC, Monte Python, Flask, CCL, Healpix.
Peer Reviewer	Journal of Cosmology and Astroparticle Physics
Others	Post-Doc Representative at UCL's Astrophysics Group (2020)

Languages

English	Fluent (speaking, reading, writing)
Portuguese	Native speaker
French	Intermediate (speaking, reading) and basic (writing)

Grants & Awards

NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT (BRAZIL)

2015-2018	Science without Borders PhD Fellowship , University College London	£131,378
2012	Science without Borders Exchange Scholarship , Université de Montréal	CAN\$6700

Publications

- 1 Upper Bound of Neutrino Masses from Combined Cosmological Observations and Particle Physics Experiments
A. Loureiro, A. Cuceu, et al., *Physical Review Letters*, 123 (8), 2019
- 2 Cosmological measurements from angular power spectra analysis of BOSS DR12 tomography
A. Loureiro, B. Moraes, et al., *Mon. Notices of the Royal Astronomical Soc.*, 485 (1), 2019
- 3 Fourier analysis of multitracer cosmological surveys
L. R. Abramo, L. F. Secco & **A. Loureiro**, *Mon. Notices of the Royal Astronomical Soc.*, 455 (4), 2016

Teaching Experience

University College London

London, UK

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

2016 - 2018

Practical Astronomy 2 (2017, 2018), Observational Astronomy 1 (2017), Practical Physics 2 (2017), Practical Skills for Astronomy (2016)

University of Sao Paulo

Sao Paulo, BR

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

2014 - 2015

Physical Cosmology (2015), Advanced Quantum Mechanics (2014)

Universidade Federal do Rio Grande do Sul

Porto Alegre, BR

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

2010 - 2013

Basic Astronomy (2011, 2013), Psychology of Education (2010)

Research Supervision

Oct 2020 - **Vincent Yarov**, 3rd Year Literature Review supervisor on a project "A multi-messenger approach to the cosmic expansion tension" together with Prof. Ofer Lahav

UCL

Oct 2020 - **Lisa Goh**, MSc co-supervisor together with Dr Lee Whittaker and Dr Benjamin Joachimi on a project "Pseudo- C_ℓ likelihood for the Euclid galaxy survey"

UCL

Outreach

Talk: "Weighing Ghost Particles with the Universe"

YouTube

PUBLIC ENGAGEMENT TALK

2020

Outreach talk for Astronomy on Tap London, live on YouTube. URL: <https://youtu.be/MLwBvdc675A>

Article: "Ghost particles: how galaxies helped us weigh the lightest neutrino"

The Conversation

PRESS RELEASE

2019

Article published at The Conversation portal related to Loureiro et al. 2019b, informing the general public about the main results in the paper.

Talk: "Hunting Ghosts with Galaxies"

Porto Alegre, BR

PUBLIC ENGAGEMENT TALK

2018

Outreach talk at a high school about Cosmology, Neutrinos, and data science.

If a Tree falls in the Forrest: Cosmology meets Art

Grizdale Forest, UK

ART EXHIBITION

2018

Art exhibition in collaboration with the Royal College of Arts. Presentation of a workpiece "Confirmation of Time" in collaboration with the artist Franziska Hatton. URL: <http://ifatreefalls.rca.ac.uk>

L'Observatoire Bizarre

London, UK

ROYAL ACADEMY OF ARTS LATES

2018

Public engagement in collaboration with the Royal College of Arts at the Dada & Surrealism RA Late. Organised by Dr. Andrew Pontzen and Michaela French.

Physics Club: "Time in Cosmology"

Porto Alegre, BR

PUBLIC ENGAGEMENT TALK

2015

Outreach talk at the Physics Club, Universidade Federal do Rio Grande do Sul.

Invited Talks

2019	Seminar at the Royal Observatory's Coffee Talks , University of Edinburgh	Edinburgh, UK
2019	Seminar at the EEP Group Meeting , University of Sussex	Brighton, UK
2019	Talk at the Spectroscopic Surveys Meeting , University College London	London, UK
2019	Talk at the Euclid Consortium Meeting , University of Helsinki	Helsinki, FN
2018	Talk at the Dark Energy Survey Collaboration Meeting , University of Campinas	Campinas, BR
2018	Astrophysics Seminar , Universidade Federal do Rio Grande do Sul	Porto Alegre, BR
2018	Department of Mathematical Physics Seminar , University of Sao Paulo	Sao Paulo, BR
2018	Astrophysics Seminar , National Institute for Space Research	S J dos Campos, BR
2018	Seminar for UCL's Lunch Talks , University College London	London, UK
2018	Talk at TESTDE Final Workshop , Royal Astronomical Society	London, UK
2017	Talk at the Dark Energy Survey Collaboration Meeting , University of Chicago	Chicago, US
2018	Talk at the Euclid Consortium Meeting , University College London	London, UK
2017	Talk at the Euclid UK Collaboration Meeting , University of Portsmouth	Portsmouth, UK
2017	Talk at the Euclid OU-LE3 Meeting , Royal Astronomical Society	London, UK
2016	Talk at the Dark Energy Collaboration Meeting , Cambridge University	Cambridge, UK
2015	Talk at the J-PAS Warm-up Meeting , University of Sao Paulo	Sao Paulo, BR

Event Organisation

Cosmology and Extragalactic Seminars

ORGANISER

London, UK

UCL's Cosmology and Extragalactic weekly seminars

2019-Currently

Euclid CalWG, Garage Day & OU-LE3 Meeting

ORGANISER

London, UK

Four day meeting at the Royal Astronomical Society and University College London.

2017

Euclid Consortium Meeting

ORGANISATIONAL GROUP

London, UK

Meeting at University College London

2017

Euclid Level 3 Simulations Meeting

ORGANISER

London, UK

One day meeting at University College London

2017

CosmoClub

ORGANISER

Sao Paulo, BR

Journal club and weekly seminars at the Department of Mathematical Physics, University of Sao Paulo

2014

References

Dr. Benjamin Joachimi

READER IN ASTRONOMY

University College London

Contact: b.joachimi@ucl.ac.uk

Prof. Alan Heavens

CHAIR IN ASTROSTATISTICS AND DIRECTOR OF IMPERIAL CENTER FOR COSMOLOGICAL INFERENCE

Imperial College London

Contact: a.heavens@imperial.ac.uk

Prof. Andrew Jaffe

PROFESSOR OF ASTROPHYSICS AND COSMOLOGY

Imperial College London

Contact: a.jaffe@imperial.ac.uk

Prof. L. Raul Abramo

PROFESSOR AT THE MATHEMATICAL PHYSICS DEPARTMENT

University of Sao Paulo

Contact: abramo@if.usp.br