

Arthur Loureiro

RESEARCHER · ASTROPHYSICS & COSMOLOGY

The Oskar Klein Centre for Cosmoparticle Physics, Department of Physics, Stockholm University, Stockholm SE-106 91, Sweden

Visitor at Imperial Centre for Cosmology and Inference, Imperial College London, Physics Department, London, UK

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Research & Work Experience

Stockholm University

PI RESEARCHER

Research Fellow on a Swedish National Space Agency Grant “Measuring the lightest neutrino mass with Euclid and the Planck”

Stockholm, Sweden

March. 2023 - PRESENT

Imperial College London

POST-DOCTORAL RESEARCH ASSOCIATE (CURRENTLY VISITING RESEARCHER)

London, United Kingdom

PDRA (2019-2020) and visiting researcher (currently) working with Profs. Heavens & Jaffe on Field Level Inference for Cosmic Shear on the sphere.

Dec. 2019 - PRESENT

University of Edinburgh

SENIOR SCIENTIST/DEVELOPER (50% FTE UNTIL OCT. 2022)

Edinburgh, United Kingdom

Sept. 2021 - Feb. 2023

Euclid SGS Senior Scientist/Developer working with Prof. Andy Taylor on weak lensing shape measurement calibration and sensitivity.

University College London

RESEARCH FELLOW (50% FTE FROM SEPT. 2021)

London, United Kingdom

Apr. 2020 - Sept. 2022

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

University College London

POST-DOCTORAL RESEARCH ASSISTANT

London, United Kingdom

Dec. 2018 - Dec. 2019

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

Education

University College London

PHD IN ASTROPHYSICS

London, United Kingdom

2015 - 2019

Advisors: Dr. F. Abdalla and Prof. Ofer Lahav

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

University of São Paulo

MASTERS IN MATHEMATICAL PHYSICS

São Paulo, Brazil

2013 - 2015

Advisor: Prof. L. Raul Abramo

Thesis: Galaxy Power Spectrum: A Monte-Carlo Approach

Université de Montréal

UNDERGRADUATE EXCHANGE

Montréal, Canada

2012

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

Universidade Federal do Rio Grande do Sul

UNDERGRADUATE DEGREE IN PHYSICS WITH EMPHASIS IN ASTROPHYSICS

Porto Alegre, Brazil

2010 - 2013

Advisor: Prof. Silvio R. Dahmen

Dissertation: Relativistic Thermodynamics applied to Cosmological Models

Grants & Awards

SWEDISH NATIONAL SPACE AGENCY

2025-2028 (PI) **Career Grant: “Measuring the Lightest Neutrino Mass with Euclid and Planck”**, Stockholm University

€473 243

UKRI, EDINBURGH PARALLEL COMPUTING CENTRE

2024-2026 (Co-I) **ARCHER2 eCSE: “GLASS: A GPU-enable ecosystem for simulating the universe”**, UCL

£284 000

UNIVERSITY COLLEGE LONDON (UNITED KINGDOM)

2020-2022 **UCL Provost Strategic Fund Fellowship**, University College London

£112 554

NATIONAL COUNCIL FOR SCIENTIFIC AND TECHNOLOGICAL DEVELOPMENT (BRAZIL)

2015-2018	Science without Borders PhD Fellowship , University College London	£131 378
2013-2015	CNPq Masters Scholarship , University of São Paulo	R\$30 000
2012	Science without Borders Exchange Scholarship , Université de Montréal	CAN\$6700

Skills & Professional Services

Programming	Advanced Python, Jupyter, Bash, and Slurm for HPC; intermediate C/C++, Julia, jax, torch, SQL.
Cosmological Codes	CLASS, Hi-CLASS, CAMB, Monte Python, CCL, Healpix, BORG, and Glass (co-developer)
Peer Reviewer	Journal of Cosmology and Astroparticle Physics, Monthly Notices of the Royal Astronomic Society, The Open Journal of Astrophysics
Scientific Collaborations	LSST Dark Energy Science Collaboration (1.0+ FTE), Euclid Consortium (3.5 FTE), Kilo Degree Survey
Leadership Roles	OKC Cosmology & Gravitation Working Group Coordinator (2024-) Pipeline Scientist for the Dark Energy Science Collaboration (2023-2025) Co-Lead Euclid LE3 Weak Lensing Pre-Launch Key Project (2021-2023) PDRA Representative at UCL's Astro Group (2020-2022),
Languages	English: Fluent (speaking, reading, writing); Portuguese: Native; French: Intermediate (speaking, reading) and basic (writing); Spanish: Basic (writing, speaking, reading); Swedish: < Basic (writing, speaking, reading);

Selected Publications

143 Publications, 74 of which are refereed, of those **7 as first author or *corresponding author**.

Total citations: 2942, **h-index: 23**. An up-to-date list of publications and citations can be found in [ADS here](#).

1. [Upper Bound of Neutrino Masses from Combined Cosmological Observations and Particle Physics Experiments](#)
A. Loureiro, A. Cuceu, et al., *Physical Review Letters*, 123, 2019 (80 citations)
2. [KiDS & Euclid: Cosmological implications of a pseudo- \$C_\ell\$ analysis of KiDS-1000 cosmic shear tomography](#)
A. Loureiro, L. Whittaker, A. Spurio Mancini, KiDS Collaboration & Euclid Collab., *A & A*, 665, 2022 (63 citation)
3. [Almanac: Weak Lensing power spectra and map inference on the masked sphere](#)
A. Loureiro, L. Whiteway, E. Sellentin, et al., *The Open J. of Astrop.*, 6, 6, 2023 (19 citations)
4. [Cosmological measurements from angular power spectra analysis of BOSS DR12 tomography](#)
A. Loureiro, B. Moraes, et al., *MNRAS*, 485, 2019 (52 citations)
5. [GLASS: Generator for Large Scale Structure](#)
N. Tessore, **A. Loureiro***, B. Joachimi et al., *The Open Journal of Astrop.*, 6, 11, 2023 (28 citations)
6. [Reconstructing the largest scales of the Universe with field-level inference applied to the Quaia Quasar Catalogue](#)
A. Andrews, **A. Loureiro***, J. Jasche et al., *Submitted to MNRAS*, 2026

Research Supervision

2025-2026	Xander Nooderloos (MSc Erasmus) , Co-supervisor for Exchange Research Masters from U. of Utrecht on a project “Neutrino masses from cross-correlations between LSST and CMB Lensing”	Stockholm University
2024-2025	Iago Lopes-Dias (undergrad) , Co-supervisor for Undergraduate student at Federal University of Rio de Janeiro on an BSc thesis “Impact of Limber Approximation in angular power spectra of Spectroscopic Surveys”	UFRJ
2024-2025	Pedro Henrique Ribeiro (MSc) , Co-supervisor for Masters student at Federal University of Rio de Janeiro on a thesis “Forecasting the impact of linear 3x2pt systematics on constraints of neutrino mass for LSST”	UFRJ
2023	Ivan Sladoljev (MSc Erasmus) , Supervisor for Erasmus Exchange Research Trainee from U. of Zagreb on a project “Field Level Inference for PNGs in the CMB”	Stockholm University
2020 - 2021	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
2018	Marion Thomas (undergrad) , Co-supervisor on a Summer Internship (12 weeks) project “Synergies between Spectroscopic and Photometric Galaxy Surveys” (Funded by RAS)	UCL
2018	Joshua Lawton (undergrad) , Co-supervisor on a Summer Internship (12 weeks) project “Creating a Galaxy Clustering Catalogue with PanSTARRS”	UCL

Teaching Experience

Stockholm University

LECTURER - UNDERGRADUATE, MASTERS, AND PHD LEVEL

Lecturer on "Statistical Methods for Physics" (2023, 2025) and "Nuclear and Particle Physics, Astrophysics and Cosmology" (2025)

Stockholm, Sweden

2023, 2025

University of Edinburgh

TEACHING ASSISTANT - PHD LEVEL

Teaching assistant at the PhD Hackathon on data analysis (2022)

Edinburgh, UK

2022

University College London

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

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

London, UK

2016 - 2018

University of São Paulo

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

Physical Cosmology (2014/2), Advanced Quantum Mechanics (2014/1)

São Paulo, BR

2014 - 2015

Universidade Federal do Rio Grande do Sul

TEACHING ASSISTANT - UNDERGRADUATE LEVEL

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

Porto Alegre, BR

2010 - 2013

Selected Outreach

Public Engagement talk at Scientifika Halloween Edition: "Who you gonna weigh? Ghost Particles!"

Public engagement talk about massive neutrinos and how to measure their masses combining cosmological data and particle physics.

Sweden
2025

Cover Article about the Euclid Telescope

Cover Article about the Euclid Telescope and the Early Released Images for the Brazilian Astronomy Magazine, organised by the Brazilian Astronomical Society. [Link](#)

Brazil
2023

Guest on the Podcast "Missão Exoplaneta"

Guest scientist in the Brazilian astronomy podcast Missão Exoplaneta (Exoplanet Mission) communicating about the Euclid Satellite Launch and my experience attending it at ESA Mission Control Centre. [Link](#)

Spotify
2023

Project Collaborator for #AstroThreadBR and #AstroMiniBR

Social Media engagement with the science enthusiasts community in Brazil via the #AstroThreadBR and #AstroMiniBR projects to educate the general public about astronomy. Some threads reaching around 10-20k impressions.

Twitter
2019-2022

Public Engagement Talk: "Weighing Ghost Particles with the Universe"

Public outreach talk for Astronomy on Tap London, live on YouTube due to COVID restrictions. URL:
<https://youtu.be/MLwBvdc675A>

YouTube
2020

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

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

The Conversation
2019

Public Engagement Talk: "Hunting Ghosts with Galaxies"

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

Porto Alegre, BR
2018

Art Exhibition: If a Tree falls in the Forrest, Cosmology meets Art

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>

Grizedale Forest, UK
2018

Royal Academy of Arts Lates: L'Observatoire Bizarre

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

London, UK
2018

Public Engagement Talk at Physics Club: "Time in Cosmology"

Outreach talk at the Physics Club about how time is perceived in Cosmology, Universidade Federal do Rio Grande do Sul.

Porto Alegre, BR
2015

Event Organisation

Kilo Degree Survey - 6x2pt Workshop	<i>Stockholm, Sweden</i>
ORGANISER	June/2025
Statistical Challenges on 21st Century Cosmology (Cosmo21)	<i>Chania, Greece</i>
SCIENTIFIC ORGANISING COMMITTEE	May/2024
Euclid Collab. Meeting, Session on Field Level Inference	<i>Copenhagen, DN</i>
Co-ORGANISER	May/2023
Euclid Weak Lensing Science Working Group Meeting	<i>Edinburgh, UK</i>
Co-ORGANISER	Dec/2022
London Cosmology Discussion Meeting - “Breaking LCDM”	<i>(online) London, UK</i>
ORGANISER	Feb/2021
Cosmology and Extragalactic Seminars at UCL	<i>London, UK</i>
ORGANISER	Jan/2019 - Jan/2021
Euclid CalWG, Garage Day & OU-LE3 Meeting	<i>London, UK</i>
ORGANISER	2017
Euclid Consortium Meeting	<i>London, UK</i>
ORGANISATIONAL GROUP	2017
CosmoClub	<i>São Paulo, BR</i>
ORGANISER	2014

Selected Talks

2024	CMB/LSS Discussion Group Seminar , Institute of Astronomy, University of Cambridge	<i>Cambridge, UK</i>
2023	Dark Sector Cosmology Talk , Jet Propulsion Lab, NASA/Caltech	<i>Passadena, US</i>
2023	Cosmology Talk , The Oskar Klein Centre, Stockholm University	<i>Stockholm, SE</i>
2022	Talk at GR effects in observing the Large-Scale Structure of the Universe , Universidade do Porto	<i>Porto, PT</i>
2022	Cosmology Seminar , Queen Mary University of London	<i>London, UK</i>
2022	Cosmology Seminar , University of Portsmouth	<i>Portsmouth, UK</i>
2021	Cosmology Group Talk , University of São Paulo	<i>São Paulo, BR</i>
2021	Stobie Talk on Science Funding Crisis in Brazil , University of Edinburgh	<i>Edinburgh, UK</i>
2021	Cosmology Seminar at the PPGCosmo , Federal University of Espírito Santo	<i>Vitória, BR</i>
2021	Cosmology Seminar , CosmoStat, Commissariat à l'énergie atomique (CEA)	<i>Saclay, FR</i>
2021	Cosmology Seminar , Max Planck Institute for Astrophysics	<i>Munich, GE</i>
2020	Talk at the Kilo Degree Survey Busy Week , German Centre for Cosmological Lensing	<i>Bochum, GE</i>
2019	Seminar at the Royal Observatory's Coffee Talks , University of Edinburgh	<i>Edinburgh, UK</i>
2019	Seminar at the EEP Group Meeting , University of Sussex	<i>Brighton, UK</i>
2019	Talk at the Euclid Consortium Meeting , University of Helsinki	<i>Helsinki, FN</i>
2018	Astrophysics Seminar , Universidade Federal do Rio Grande do Sul	<i>Porto Alegre, BR</i>
2018	Department of Mathematical Physics Seminar , University of São Paulo	<i>São Paulo, BR</i>
2018	Astrophysics Seminar , National Institute for Space Research	<i>SJ dos Campos, BR</i>
2017	Talk at the Dark Energy Survey Collaboration Meeting , University of Chicago	<i>Chicago, US</i>
2017	Talk at the Euclid OU-LE3 Meeting , Royal Astronomical Society	<i>London, UK</i>
2016	Talk at the Dark Energy Collaboration Meeting , Cambridge University	<i>Cambridge, UK</i>
2015	Talk at the J-PAS Warm-up Meeting , University of São Paulo	<i>São Paulo, BR</i>

References

Prof. Alan Heavens	<i>Imperial College London</i>
CHAIR IN ASTROSTATISTICS	
Contact: a.heavens@imperial.ac.uk	
Prof. Benjamin Joachimi	<i>University College London</i>
PROFESSOR IN ASTRONOMY	
Contact: b.joachimi@ucl.ac.uk	
Prof. Elisa Chisari	<i>Utrecht University</i>
ASSOCIATE PROFESSOR OF PHYSICS	
Contact: n.e.chisari@uu.nl	