

Dr. Natalie B. Hogg

Postdoctoral researcher in cosmology at the **Institute of Astronomy**, University of Cambridge

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Employment

Oct 2025 – present Institute of Astronomy, University of Cambridge
Postdoctoral researcher

Building likelihood-free inference techniques for strong lensing with Prof. Will Handley.

Oct 2023 – Oct 2025 Laboratoire univers et particules, Université de Montpellier
Postdoctoral researcher

Modelling strong lensing images for cosmology with Prof. Julien Larena.

Feb 2022 – Oct 2023 Institut de physique théorique, Paris-Saclay
Postdoctoral researcher

Developing theoretical applications of strong lensing to cosmology, with Dr. Pierre Fleury.

Jun 2021 – Feb 2022 Instituto de física teórica, Universidad Autonoma de Madrid
Postdoctoral researcher

Working on applications of strong lensing and gravitational waves to cosmology, with Dr. Pierre Fleury and Dr. Matteo Martinelli.

Education

2017 – 2021 **PhD in Cosmology**, University of Portsmouth

Thesis: **Beyond Λ CDM: current and future constraints on alternative cosmological models**
Supervisors: Dr. Marco Bruni, Prof. David Wands, Prof. Robert Crittenden

2013 – 2017 **MPhys Astrophysics 1st class hons.**, Aberystwyth University
with **Breen Prize** for best Master's dissertation in physics

Master's dissertation: **Dynamical models of dark energy & their background cosmological evolution**
Supervisor: Prof. Carsten van de Bruck (University of Sheffield; supervised remotely)

Leadership & service

Ongoing **Referee** for MNRAS, JCAP, OJA, ApJ & PDU.

2025 – present **Co-lead**, **COSMOS-Web** Lensing Working Group

2024 **Organiser**, **Strong Lensing Beyond the Main Lens workshop**, Montpellier.

2023 – 2024 **Organiser**, LUPM cosmology journal club.

2022 – 2023 **Organiser**, IPhT cosmology & gravity journal club and IPhT cosmology seminar series.

2020 **Chair**, local organising committee, **South Coast Cosmology meeting**, University of Portsmouth.

2019 **Member**, local organising committee, **A History of the Universe in Redshift** conference

2018 – 2019 **PhD student representative**, ICG management committee & Faculty Research Degrees committee, University of Portsmouth.

Major awards

- 2021** **G-Research quantitative research grant: £2000**
Hardship grant from major **financial technology company**
- 2017** **Breen Prize: £2000**
Best Master's dissertation in physics, Aberystwyth University

Plus **travel grants** awarded over the period 2017 – 2020 from STFC, EU COST-Action CANTATA and Santander Bank totalling approximately £6000.

Highlighted talks

- Apr 2025** **Strong and weak lensing for cosmology**
Invited colloquium, CEICO, Prague
- Aug 2023** **Strong and weak lensing for cosmology**
Invited plenary talk, “Lensing at Different Scales” workshop, University of Chicago
- Apr 2023** **The weak lensing of strong lensing: a new cosmological probe** 
Invited seminar, LUTH, Observatoire de Paris
- Sep 2022** **Dancing in the dark: detecting a population of distant primordial black holes**
Invited seminar, IAS, Orsay
- Apr 2022** **The distance duality relation: violations, constraints and biases**
Invited seminar, IAP, Paris

Since 2017, I have given 21 invited talks, contributed talks at 20 conferences and workshops, won 3 best talk prizes and given 5 outreach talks, including a Youtube video on the topic of standard sirens which has over 15,000 views .

Supervision, mentorship and teaching

- Supervision** Fabio Mongillo, undergraduate student research project, 2025.
Jason Makechemu, undergraduate student research project, 2022.
Marco Sebastianutti, PhD student at the University of Sussex, 2022 – 2023.
- Mentorship** Giacomo Queirolo, postdoc at the Université de Montpellier, since 2024.
Théo Duboscq and Daniel Johnson, PhD students at the Université de Montpellier, since 2023.
- Teaching** Lab demonstrator for Computational Physics course; coursework and exam marking for various physics courses during my PhD (2017 – 2019).