

## Catherine Laura Hale Curriculum Vitae

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**Departmental Address:** Department of Physics, University of Oxford, Denys Wilkinson Building,  
Keble Road, Oxford, Oxfordshire, OX1 3RH, United Kingdom

**Research Interests:** Galaxy evolution - Radio Continuum Surveys - Multi-wavelength Studies - Galaxy Clustering - Evolution of Bias - AGN studies - Observational Cosmology

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### Education:

2015-present     *Post-Graduate: Merton College, University of Oxford:*

DPhil (PhD) in Astrophysics working with Prof. Matt Jarvis  
Thesis Title - "Studying Galaxy Evolution with Modern Radio Surveys"  
Expected Submission: March 2019

Completed Long Term Attachment to University of Western Australia from March 2018 (for 3 months) working with Dr. Aaron Robotham, Dr. Luke Davies and Prof. Simon Driver funded by the Science and Technology Facilities Council (STFC)

Research Projects:

- Clustering of different radio sources in the JVLA 3 GHz COSMOS Survey
- LOFAR Observations of the XMM-LSS Field
- Radio Source Extraction with ProFound
- Conditional Luminosity Function of Radio Galaxies

2011-2015     *Undergraduate: Merton College, University of Oxford:*

MPhys with First Class honours in Physics.  
First Class results in all years. Ranked in the top ten Physics students of cohort for final grade. Commended for practical work in first year. Awarded Fowler Prize from Merton College six times for internal college exams as well as college scholarships awarded for performances in University examinations

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### Publications - First Author

Accepted

Hale et al. 2018, MNRAS, 474, 4133

*The clustering and bias of radio-selected AGN and star-forming galaxies in the COSMOS field*

Hale et al., Accepted to A&A

*LOFAR Observations of the XMM-LSS field*

In prep

Hale et al., in prep (to be submitted in next few weeks)

*Radio source extraction with ProFound*

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## Publications - Listed Author

Shimwell et al., Accepted to A&A	<i>LOFAR Two-metre Sky Survey – II. First Data Release</i>
Williams et al., Submitted to A&A	<i>LOFAR Two-metre Sky Survey – II. First Data Release: Optical Identifications and Value-added catalogue</i>
Hatfield et al., 2018, MNRAS, 477, 3760	<i>The environment and host haloes of the brightest <math>z \sim 6</math> Lyman-break galaxies</i>
Jarvis et al. 2017, arXiv:1709.01901	<i>The MeerKAT International GHz Tiered Extragalactic Exploration (MIGHTEE) Survey</i>
Smith et al. 2016, arXiv:1611.02706	<i>The WEAVE-LOFAR Survey</i>

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## Talks and Posters

October 2018, Leiden, The Netherlands	LOFAR Surveys Meeting - Talk title: " <i>LOFAR Observations of the XMM-LSS Field</i> "
October 2018, University of Oxford	Galaxy Evolution Seminar - Talk title: " <i>Studying Galaxy Evolution with Modern Radio Surveys</i> "
May 2018, University of Western Australia	Astro Morning Tea Talk - Talk title: " <i>Radio Source Extraction with ProFound</i> "
May 2018, Remote talk, conference in Penticton, Canada	SPARCS 2018 Meeting - Talk title: " <i>Clustering with Radio Surveys</i> "
April 2018, Remote talk, conference in Pune, India	uGMRT-MIGHTEE Meeting - Talk title: " <i>Clustering with Radio Surveys</i> "
December 2017, Queen Mary University of London, UK	SKA Cosmology Meeting - Talk title: " <i>The Evolution of Bias of Radio Sources</i> " (given to continuum sub-working group)
September 2017, University of Oxford, UK	MIGHTEE Meeting - Talk title: " <i>The Clustering of Radio Sources from JVLA-COSMOS</i> "
July 2017, University of Hull, UK	National Astronomy Meeting - Talk title: " <i>LOFAR Observations of the XMM-LSS Field</i> "
June 2017, Bologna, Italy	The Broad Impact of Low Frequency Observing - Poster presented: <i>LOFAR Observations of the XMM-LSS Field</i>
March 2016, Cape Town, South Africa	Conference on "The Role of AGN in Galaxy Evolution" - Talk title: " <i>Correlation Functions and Radio Reduction with LOFAR</i> "

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## Computing skills:

Code predominantly in Python

Experience working with: R and C-Programming

Other: Topcat; ds9;  $\text{\LaTeX}$

I have also used LOFAR reduction pipelines and had experience using CASA to reduce MeerKAT data under the direction of Dr. Ian Heywood and will have further experience with CASA as I complete my PhD

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## Collaborations involved with:

CHILES Con-Pol, LOFAR Surveys, MIGHTEE, SKA-Cosmology

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**Teaching:**

2017-2018	Lectured the UK Astronomy Olympiad team on Radio Astronomy
2015-2018	Graduate Mentor for Merton College, Oxford - Providing tutoring sessions on request to Undergraduate physicists
2016-2017	University of Oxford Physics Masters Course Tutor for the C1 Astrophysics Course

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**Other Scientific Research Experience:**

2014	University of Würzburg	RISE Scholarship Holder. Ten week placement at the Julius Maximilian Universität Würzburg Institut für Theoretische Physik und Astrophysik under the direction of Annika Kreikenbohm and Katharina Leiter. This placement was funded by the DAAD (German Academic Exchange Service). The project involved investigating X-Ray spectra of absorbers around active galactic nuclei in order to investigate their properties
2013	Institute of Astronomy, Cambridge	Eight week placement under the direction of Prof. Paul Hewett conducting research into the properties of MgII absorbers surrounding quasi stellar objects

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**Other Positions of Responsibility:**

2015-Present	Outreach volunteer for the University of Oxford Sub-Department of Astrophysics
2015-2018	Events co-ordinator for the University of Oxford Women in Physics Society (OxWiP)
2016-2017	Graduate Representative for the University of Oxford Astrophysics Sub-Department
2013-2014	Female Welfare Representative for Merton College, Oxford. Undertook peer support training to be able to talk confidentially with my peers, as well as organising social welfare events for the undergraduate body
2006-2013	Volunteer Guide Leader at 2nd Whitton Rainbow Guide group, helping to organise and run engaging activities for 5-7 year old girls

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