Nicholas Choustikov

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Place of birth: Auckland, New Zealand *Date of birth:* 10th June 1999

Denys Wilkinson Building, Keble Road, Oxford, OX1 3RH

Interests

Galaxy formation and evolution, magnetohydrodynamics, high-energy astrophysics, AGN feedback, black holes, astrophysical tests of gravity, reionization, large-scale structure and cosmology

Education

DPhil in Astrophysics *Mansfield College, University of Oxford*
PhD program *October 2022 - Present*
***Supervisors**: Professor Julien Devriendt and Professor Adrianne Slyz*
***Thesis title**: The impact of magnetic fields on gas accretion onto supermassive black holes and AGN feedback: the next frontier of galaxy formation cosmological simulations*

BA + MSci in Natural Sciences *Fitzwilliam College, University of Cambridge*
Undergraduate program *October 2018 - July 2022*
***Grade**: Double First Class with Distinction (85%, ranked 3rd)*
***Masters Supervisors**: Dr Zvonimir Vlah and Professor Anthony Challinor*
***Courses**: Astrophysical Fluid Dynamics, General Relativity, Black Holes, Galaxy Formation, Cosmology, Modern Stellar Dynamics, Quantum Field Theory, Field Theory in Cosmology*

Publications

1. Optimizing the Evolution of Perturbations in the ΛCDM Universe *2023*
***Nicholas Choustikov**, Zvonimir Vlah and Anthony Challinor*
Submitted to Phys. Rev. D

2. The Physics of Indirect Estimators of Lyman Continuum Escape and their Application to High-Redshift JWST Galaxies *2023*
***Nicholas Choustikov**, Harley Katz, Aayush Saxena, Alex Cameron, Julien Devriendt, Adrianne Slyz, Joki Rosdahl, Jeremy Blaizot and Leo Michel-Dansac*
Submitted to MNRAS

3. The Einstein Toolkit: A Student's Guide *2020*
Nicholas Choustikov
Published on arXiv

Academic Internships

Kavli Institute for Cosmology, University of Cambridge *Summer 2022*
***Project**: Loop-order corrections for dark matter power spectra with quintessence dark energy*
***Supervisors**: Dr Zvonimir Vlah and Professor Anthony Challinor*

Mullard Space Science Laboratory, University College London *Summer 2021*
***Project**: Simulating QCD phase transitions in binary neutron star mergers*
***Supervisor**: Professor Kinwah Wu*

AMOP Group, University of Cambridge *Summer 2019*
***Project**: Designing and building a long-lasting millisecond optical shutter*
***Supervisors**: Dr Timon Hilker and Professor Zoran Hadzibabic*

Conferences

RAMSES User Meeting *2023*
University of Oxford

- ***Talk**: Towards a General Framework of Escape Fraction Diagnostics*
- ***Organisation**: Part of LOC, Ran IT for the event*

Awards and Societies

STFC Stipend *2022 - 2026*
Full PhD stipend plus course fees for 3.5 years

1912 Senior Scholarship + Foundation Scholarship *2022*
Award for achieving a first class result in each year of the undergraduate course

Ronald Walker Scholarship + Rawlins Prize *2021*
Award for best computational project

Elected Fellow of the Royal Astronomical Society (FRAS) 2020

Other Experience

Men's Captain of Cambridge University Eton Fives Club *2020 - 2021*
Organised COVID-19-safe return to play policies for the club
Oversaw and coached in safe training sessions for experienced and beginner players
Organised safe travel and participation for players in Universities/National U25s tournaments
Organised and oversaw a sucessful and COVID-19-secure Varsity match

Self-Run Research Project *2020*
Simulating binary black hole mergers with the Einstein Toolkit
Published: The Einstein Toolkit: A Student's Guide

Secretary of Cambridge University Eton Fives Club *2019 - 2020*
Liaised with other clubs to organise fixtures for both the Mens' and Ladies' Clubs
Coached players of all standards at University and College clubs

Technical skills

Programming Languages	Python, Fortran, Bash, MATLAB, LaTeX, Mathematica, MPI parallel programming
Software/Tools	RAMSES, Einstein Toolkit, High-powered computing, VisIT, Microsoft office
Other	Trained to operate class 3B/4 lasers, proficient solderer
Languages	English (*native*), Russian (*fluent*), French (*intermediate*), German (*basic*)

References

Julien Devriendt, University of Oxford
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Mott Building, Cavendish Laboratory
JJ Thomson avenue, CB3 0HE Cambridge, UK
Email: apj24@cam.ac.uk

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KICC, Institute of Astronomy
Madingley Road, CB3 0HA Cambridge, UK
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