

Jiten Dhandha

PhD student - University of Cambridge

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Employment

Jul. 2024 - Aug. 2024	Summer volunteer internship , Boustany Foundation, Monaco. Partnering with Open Cultural Center, a humanitarian NGO focused on providing teaching, advice and extracurricular activities to asylum-seekers and refugees in the Nea Kavala camp in Greece.
Jun. 2021 - Aug. 2021	Summer research project , University of Manchester. Modelling the cosmological 21-cm signal in Recfast++ and CosmoTherm to study their synergy with CMB spectral distortions. Supervised by Prof. Jens Chluba.
Jun. 2020 - Sep. 2020	Summer research project , University of Manchester. Testing and debugging LOFAR-VLBI calibration/imaging pipeline for gravitational lenses. Supervised by Dr. Neal Jackson.
Jul. 2019 - Sep. 2019	Summer Intern Programme , British Petroleum / University of Manchester. Simulating mitigation techniques for sulphate reducing bacteria responsible for fouling crude oil. Supervised by Dr. Thomas Waigh.

Education

2022 - present	PhD in Astronomy , Institute of Astronomy, University of Cambridge. Funded by Boustany Astronomy Scholarship & Isaac Newton Studentship at Pembroke College. Supervised by Prof. Anastasia Fialkov and Dr. Eloy de Lera Acedo.
2018 - 2022	MPhys. Physics with Astrophysics First Class, University of Manchester. Project involved simulating turbulent molecular clouds in ISM and studying filament and star formation. Performed with Zoe Faes and supervised by Dr. Rowan Smith.
2016 - 2018	All India Senior School Certificate Examination , DPS - Modern Indian School, Doha, Qatar. Average of 95.2% in AISSCE (A-level equivalent) examination.

Publications

First Author

April 2024	J. Dhandha , Z. Faes, R. J. Smith <i>Decaying turbulence in molecular clouds: how does it affect filament networks and star formation?</i> , Monthly Notices of the Royal Astronomical Society, 529, 4699-4718
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Contributing Author

December 2024	O. S. D. O'Hara, Q. Gueuning, E. de Lera Acedo, F. Dulwich, J. Cumner, D. Anstey, A. Brown, A. Fialkov, J. Dhandha , A. Faulkner, Y. Liu <i>Uncovering the Effects of Array Mutual Coupling in 21-cm Experiments with the SKA-Low Radio Telescope</i> , arXiv e-prints, arXiv:2412.01699
September 2024	O. S. D. O'Hara, F. Dulwich, E. de Lera Acedo, J. Dhandha , T. Gessey-Jones, D. Anstey, A. Fialkov <i>Understanding spectral artefacts in SKA-Low 21-cm cosmology experiments: the impact of cable reflections</i> , Monthly Notices of the Royal Astronomical Society, 533, 2876-2892
November 2023	A. Fialkov, T. Gessey-Jones, J. Dhandha <i>Cosmic mysteries and the hydrogen 21-cm line: bridging the gap with lunar observations</i> , arXiv e-prints, arXiv:2311.05366
December 2022	S. K. Acharya, J. Dhandha , J. Chluba <i>Can accreting primordial black holes explain the excess radio background?</i> , Monthly Notices of the Royal Astronomical Society, 517, 2454-2461
February 2022	S. Badole, D. Venkattu, N. Jackson, S. Wallace, J. Dhandha , P. Hartley, C. Riddell-Rovira, A. Townsend, L. K. Morabito, J. P. McKean <i>High-resolution imaging with the International LOFAR Telescope: Observations of the gravitational lenses MG 0751+2716 and CLASS B1600+434</i> , Astronomy & Astrophysics, 658, A7

Talks

Conference and Workshop talks

October 2024	<i>Constraining star-formation efficiency in the early Universe using JWST and the cosmic 21-cm signal</i> , Introduction to KICC, Kavli Institute for Cosmology, Cambridge.
September 2024	<i>Constraining star-formation efficiency in the early Universe using JWST and the cosmic 21-cm signal</i> , 7th Global 21-cm Workshop, Raman Research Institute.
May 2024	<i>Synergies between 21-cm experiments and JWST observations</i> , Reionization in Relic Radiation (R3), Institut d'Astrophysique Spatiale, Université Paris-Saclay.
February 2024	<i>Synergies between 21-cm experiments and JWST observations</i> , Science with the 21-cm line, KICC, University of Cambridge.
September 2023	<i>Bringing 21-cm simulations to the JWST era</i> , 2nd REACH Annual Meeting, University of Malta.
September 2023	<i>FIlamentary STructure Analysis (fiesta)</i> , AREPO-ISM workshop, University of Manchester.
October 2022	<i>Can accreting primordial black holes explain the excess radio background?</i> , PDAT Laboratory, K. N. Toosi University of Technology (virtual webinar).

Outreach talks

October 2022	<i>Like beads on a string... Where do massive stars in our Universe come from? A brief look into studying our cosmos</i> , Pembroke Papers, Pembroke College, University of Cambridge.
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Grants and awards

April 2024	DiRAC Resource Allocation Committee 16th Call , awarded 4.15M CPUh (worth £41,500) on DiRAC's COSMA-8 supercomputer.
July 2022	Tessella Prize for Software (£125), for outstanding work implementing software in Mphys project.
April 2019	BP Achievement Award (£1000), for best essay on petrophysical logging tools.
December 2018	Physics Success Scholarship (£2000), for academic excellence in physics and maths.

Conference organisation

February 2024	Kavli Science Focus: Science with the 21-cm line , member of Organising Committee and session chair, KICC, University of Cambridge.
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Teaching responsibilities

Oct. 2024 - <i>present</i>	Co-Supervision: Kyle Wong (Masters student) with Prof. Anastasia Fialkov. Working on studying the impact of structure formation and cosmology on the hydrogen 21-cm signal from Cosmic Dawn.
Oct. 2024 - <i>present</i>	Co-Supervision: Jacques Valkenberg (Masters student) with Prof. Anastasia Fialkov and Dr. Sandro Tacchella. Working on studying the impact of metal enrichment and stellar IMF on the 21-cm signal of neutral hydrogen.
Oct. 2023 - <i>Jul. 2024</i>	Co-Supervision: Rachel Incley (Masters student) with Prof. Anastasia Fialkov. Working on comparison of Epoch of Reionization in simulation codes 21cmSPACE and C2-Ray .
Feb. 2023 - Mar. 2023	Demonstration of Part IA Scientific Computing for 22 hours, University of Cambridge.

Software

21cmExperiments	Maintainer: Comprehensive public repository/Google sheet of past & ongoing 21-cm experiments.
CFit	Main author and maintainer: Smart curve fitting tool using method of least squares in Python.
fiesta	Main author and maintainer: Toolkit for analyzing filament networks and density field meshes.
luminobs	Main author and maintainer: Compendium of high-redshift galaxy UVLF observations.

In the media

August 2021	Most detailed-ever images of galaxies revealed using LOFAR . Press release for LOFAR observations from ASTRON.
August 2021	Astronomers develop novel way to ‘see’ first stars through fog of early Universe . Press release for LOFAR observations from BBC.

Extracurricular activities

May 2023 - <i>present</i>	EDI Inclusion and Fairness subgroup member, Institute of Astronomy, UoC.
Jul. 2023 - Jul. 2024	Graduate Parlour , Ethnic Minorities officer, Pembroke College, UoC.
Oct. 2022 - <i>present</i>	Postgraduate Forum representative, Institute of Astronomy, UoC.
Oct. 2022 - Apr. 2023	Pembroke Papers committee memeber, Pembroke College, UoC.
Sep. 2021 - Jul. 2022	Student Representative representing astronomy/astrophysics, UoM.
Jul. 2020 - Jul. 2022	Touch Rugby Society , Inclusion officer and COVID-19 safety officer, UoM.
Sep. 2019 - Jun. 2020	Peer-Assisted Study Session leader, Peer Support Scheme,UoM.
Nov. 2016 - <i>present</i>	English Wikipedia , volunteer editor.

Skills

Programming	Proficient: Python, MATLAB, Experienced: C++, Java
Markup	Experienced: LaTeX, Wikitext, Intermediate: HTML, CSS, reStructuredText, Markdown
Languages	Proficient: English, Hindi, Intermediate: Gujarati