

Kiran Jhass

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PhD candidate supervised by Dr Annelies Mortier as part of the Sun, Stars, and Exoplanets group at the University of Birmingham. I work on taking Solar spectropolarimetric data with ABORAS to understand and mitigate stellar variability in Solar-type stars. This work will have great implications in our search for Earth-twins.

Research interests: solar/stellar variability • radial velocity measurements • observational astronomy

Education and Projects



Education

PhD in Astronomy **2025 – 2029**
Sun, Stars, and Exoplanets Research Group | University of Birmingham **Ongoing**

- Researching stellar variability through polarimetric observations with the ABORAS telescope.

MPHYS Physics and Astrophysics with a Year in Industry **2018 – 2024**
Department of Physics and Astronomy | University of Sheffield **Grade: 2:1**

- Relevant modules include: dark matter, observational astronomy, spectroscopy, star formation & evolution, cosmology, nuclear astrophysics.
- Completed a variety of projects in this time, working individually, with a partner, and in groups.

Projects

ABORAS: A dual-Beam pOlarimetric Robotic Aperture for the Sun **2025 –**
University of Birmingham | PhD project

- Developing a pipeline to receive polarimetric data from ABORAS/HARPS3 spectropolarimetric observations of the Sun and take radial velocity measurements.

Mass determination of CV components from radial velocity measurements **2023 – 2024**
University of Sheffield | Masters project

- Proposal for observing time on the 2.5 m INT/IDS on La Palma accepted in June 2023.
- Determination of component masses of a cataclysmic variable using radial velocity measurements.
- Data reduction, velocity measurements and analysis all completed using PYTHON.

skyWATCH & EURONEAR **2023**
Isaac Newton Group of Telescopes

- Collaborator for the EUROpean Near Earth Asteroid Research (**EURONEAR**) project, systematically searching for NEAs with the INT over a 5-night run, leading to the discovery of the NEA **2023 DZ₂**.
- Star position prediction code for the skyWATCH all-sky camera developed by Dr Richard Ashley.

Determining the inclination and radius of the accretion disc in a cataclysmic variable **2022 – 2023**
University of Sheffield | Year three astronomy research project

- Produced a proposal for observations on the 0.5 m pt5m telescope in La Palma.
- Performed photometric observations in two filters of the cataclysmic variable V1315 Aql.
- Determined accretion disc properties from the analysis of light curves from both filters.

Tremor analysis and its uses in the detection of Parkinson's disease **2022 – 2023**
University of Sheffield | Year three core physics research project

- Tested and improved a simple device which was built to detect Parkinsonian tremors before they become significantly inhibiting to the patient.

- Tested and changed circuit components to improve signal from faintly oscillating objects.
- Performed Fourier analyses to isolate significant signals from noisy sources.

Employment



Planetarium presenter

2024 – 2025

Immersive Experiences Ltd

- Freelance planetarium presenter for a mobile planetarium and education company.
- Deliver presentations ranging from astronomy to geology to palaeontology for a range of ages/abilities.
- Coordination of bookings and equipment; creation of materials; maintenance of social media, email and website campaigns; training of new presenters; involved in website redevelopment.

Support astronomer

2023

Isaac Newton Group of Telescopes

La Palma

- Over 25 nights observing experience on the 2.5 m Isaac Newton Telescope.
- Responsible for supporting astronomers and observing autonomously on service or discretionary nights.
- Responsible for setting up and calibrating the WFC and IDS instruments before observing nights.

Student roles

2020 – 2022

Sheffield Physics Society & Sheffield Mentors

Sheffield

- EDI officer for the Sheffield Physics Society in my third year, organising 'Pint with a Prof' talks.
- Student mentor, providing support in both an academic and personal capacity to a first-year student.

Non-academic work

2016 – 2025

Service/hospitality/coaching roles

Birmingham

- Experience working in retail, hospitality, customer service and sports coaching.
- I have worked flexible shifts, taken on responsibilities such as night-shifts, lone working, team working and presenting information to a group.

Technical skills



Coding Languages: Majority of data analysis completed with PYTHON. Experience using Linux machines. Learning IRAF, HTML, CSS, JavaScript in spare time.

Telescope proposals and operation: Written proposals and operated the 2.5 m INT and 0.5 m pt5m telescopes in La Palma, and the 16" and 10" telescopes in Sheffield.

Publications (co-authorship)



Viswanathan et al., 2024. The Pristine survey–XXVI. The very metal-poor Galaxy: Chemodynamics through the follow-up of the Pristine-Gaia synthetic catalogue. *arXiv preprint arXiv:2405.13124*.

Popescu et al., 2023. Discovery and physical characterization as the first response to a potential asteroid collision: The case of 2023 DZ2. *Astronomy & Astrophysics*, 676, p.A126.

Bostroem et al., 2023. Early spectroscopy and dense circumstellar medium interaction in SN 2023ixf. *The Astrophysical Journal Letters*, 956(1), p.L5.

Conferences and events



29/06/2026 – 03/07/2026 | **Exoplanets 6 (poster)**: TBC [*The University of Porto*]

30/03/2025 – 02/04/2026 | **UKExoM (poster)**: A dual-Beam polarimetric Robotic Aperture for the Sun (ABO-RAS) [*University of Bristol*]

Internal talks and meetings



04/12/2025 | Group meeting (talk): Using Stellarium for planetarium talks [*University of Birmingham*]

Outreach



14/01/2026 | Donor event (telescope): Telescope demonstrations at the UoB donor outreach event [*University of Birmingham*]

19/11/2025 | Astronomy in the City (planetarium): The UoB astronomy outreach event aimed at the general public [*University of Birmingham*]

22/10/2025 | Astronomy in the City (planetarium): The UoB astronomy outreach event aimed at the general public [*University of Birmingham*]

Personal interests



Sport: I have competed since I was young in football, cricket and long-distance running, and have competed in several half- to ultra-marathon races. I also hold an open-water scuba diving certification.

Music: I enjoy playing music, having played the French Horn throughout my school years as a member of an orchestra. Currently I am learning to play the saxophone in my free time, to play songs by the band Madness.

Languages: I enjoy learning new languages, having learned Spanish in La Palma. I am currently also learning Punjabi and Polish.

References

Prof. Vikram Dhillon: vik.dhillon@sheffield.ac.uk

Prof. Stuart Littlefair: s.littlefair@sheffield.ac.uk