Dr. Joe S. Bright | Curriculum Vitae

+44 7572 548663
joe.bright@physics.ox.ac.uk / joesamuelbright@gmail.com

Education

- **University of Oxford** — **Oxford, Oxfordshire**
  DPhil Astrophysics — *September 2016 – September 2020*
  Thesis title: *Radio studies of relativistic outflows from black hole transients*
  Supervisor: *Prof. Rob Fender*
- **University of Warwick** — **Coventry, Warwickshire**
  MPhys (Hons.) Physics, First Class — *September 2012 – July 2016*
  Thesis title: *Coronal seismology with magnetohydrodynamic waves*
  Supervisor: *Prof. Valery Nakariakov*

Employment

- **Wolfson College** — **Oxford, Oxfordshire**
  Dennis Sciama Junior Research Fellow — *January 2024 – Ongoing*
- **University of Oxford** — **Oxford, Oxfordshire**
  Researcher in Radio Astronomy — *June 2023 – Ongoing*
- **University of Oxford** — **Oxford, Oxfordshire**
  Posdoctoral Researcher — *June 2022 – June 2023*
- **University of California Berkeley** — **Berkeley, California**
  Posdoctoral Researcher — *September 2021 – May 2022*
- **CIERA, Northwestern University** — **Evanston, Illinois**
  Posdoctoral Researcher — *September 2020 – September 2021*
- **University of Oxford** — **Oxford, Oxfordshire**
  Postdoctoral Researcher — *April 2020 – September 2020*

Teaching and Supervision

- **Corpus Christi College** — **Oxford, Oxfordshire**
  Atomic and Laser Physics Tutor — *January 2025 – Ongoing*
  As a member of the Corpus Christi College teaching team I tutor the third year Atomic and Laser Physics (Advanced Quantum Mechanics) course. I teach small classes of students, provide revision support, and will set and mark a collections examination.
- **Oxford Astrophysics** — **Oxford, Oxfordshire**
  DPhil Student Supervisor — *September 2024 – Ongoing*
  I am the primary supervisor of a first year DPhil student whose project is centred around the discovery of image plane transients towards the galactic centre utilising cutting edge imaging techniques.
- **Oxford Astrophysics** — **Oxford, Oxfordshire**
  Master's Student Supervisor — *June 2022 – Ongoing*
  I have supervised a number of master's student final year projects covering a range of topics, including characterising the accretion – jet connection in stellar mass black holes, using machine learning for radio

frequency interference prediction, and determining the optical contribution to jet emission in X-ray binary jets.

- **Oxford Astrophysics** — **Oxford, Oxfordshire**
  Summer Student Supervisor — *June 2023 – Ongoing*
  I am on the selection committee and supervise students as part of the astrophysics summer research programme. Two of my students have gone on to secure PhD positions.

- **Wolfson College** — **Oxford, Oxfordshire**
  DPhil/Master's Student Mentor — *January 2024 – Ongoing*
  I am a point of contact for postgraduate students at Wolfson College for discussions about their courses and life at Oxford.

Observing, Commissioning and Telescope Operations

- **Allen Telescope Array commissioning** — **Hat Creek Radio Astronomy Observatory**
  Observer — *Ongoing*
  I led the development and commissioning of the imaging mode on the Allen Telescope Array (ATA). This included validating calibration and imaging performance, and writing a pipeline to allow observers to easily produce science quality data. The ATA has subsequently been successfully used for many transient observing campaigns, and will continue to be as it is upgraded.

- **ThunderKAT/XKAT Observer** — **South African Radio Astronomy Observatory**
  Observer — *Ongoing*
  I am a key member of the ThunderKAT/XKAT observing team, and regularly plan and execute observing blocks as part of this large survey project.

- **Arcminute Microkelvin Imager Large Array observer** — **Mullard Radio Astronomy Observatory**
  Observer — *Ongoing*
  As well as formerly scheduling the AMI-LA telescope, I helped run our group's transient followup program along with Prof. Rob Fender. We observed transient events, reported via both public and private channels, at 15.5 GHz at unrivalled cadence. I am responsible for data reduction and interpretation and my processing scripts are still used by AMI-LA users to produce publication quality data.

Telescope Proposals

I have been a successful PI or CO-I on a large number of observing proposals, both from open time calls and director's discretionary time requests. Highlights include deep observations of the first multiwavelength gravitational wave source GW170817 at late times (22A-363, DDT-20201218-JB-01), the first radio campaign on transients discovered by the Einstein Probe X-ray telescope (SCI-20230907-JB-01), and . In addition I have observed and reduced hundreds (if not thousands) of hours of data from the Arcminute Microkelvin Imager Large Array and the Allen Telescope Array.

- **Karl G. Jansky Very Large Array**: 17A-430, 18A-470, 19A-298, 19A-298, 19A-302, 19B-219, 19B-219, 20A-596, 21A-178, 21A-422, 21B-170, 21B-193, 21B-290, 22A-108, 22A-109, 22A-298, 22A-363, 22A-378, 22A-417, 22B-026, 22B-075, 22B-076, 22B-221, 23A-157, 23A-289, 23B-183, 24B-070, 24B-081, 24B-347, 24B-331, 24B-349, 24A-455, 24A-473
- **MeerKAT**: DDT-20201218-JB-01, DDT-20240920-JB-01, SCI-20210212-JB-01, SCI-20230907-JB-01, SCI-20241101-FC-01
- **Australia Telescope Compact Array**: V573, C3419, C3417, C3325
- **Robert C. Byrd Green Bank Telescope** : 20B-435, 20B-437, 20B-440
- **Murriyang (formally the Parkes Radio Telescope)**: Long radio period transient follow-up (no proposal ID)

- **Very Long Baseline Array**: 19B-300, 21A-295, 22A-382, 22B-302, 24B-252
- **European Very Long Baseline Interferometry Network**: EB088
- ***Swift* X-ray Telescope**: ToO IDs 9065, 10815
- **enhanced Multi Element Remotely Linked Interferometer Network**: DD14001, CY14999
- **Northern Extended Millimetre Array**: D20AE

Talks

- ***A new era in astrophysics: Preparing for early science with the SKAO*** **Görlitz**
  Speaker – "Transient Discovery Through Commensal Fast Imaging with SKA AA"* *2025*
- **Vasto Accretion Meeting** **Vasto**
  Invited speaker – "Transient Radio Astronomy in the SKA Era" *2025*
- **ECR Showcase** **Oxford**
  Speaker – "Image Plane Science with the Allen Telescope Array" *2024*
- ***Allen Telescope Array Summer School*** **Hat Creek Radio Observatory**
  Invited lecturer – Imaging with Radio Inteferometers *2023*
- ***Breakthrough Listen Seminar Series*** **UC Berkeley**
  Invited speaker – "Real-time Feedback from X-ray Binary Jets" *2022*
- ***SARAO Bursary Conference*** **Remote**
  Invited speaker – "Superluminal jets from a black hole X-ray binary" *2021*
- ***From Winds to Jets Conference*** **Anton Pannekoek Institute for Astronomy, Amsterdam**
  Invited speaker – "XRBs with MeerKAT" *2019*
- ***Oxford SPIMAX Seminar Series*** **University of Oxford**
  Invited speaker – "The 2018 Outburst of MAXI J1820+070" *2019*

Collaboration Memberships

- **The HUNt for Dynamic and Explosive Radio Transients with MeerKAT (THUNDERKAT / XKAT).** One of 10 large survey projects with guaranteed time on the MeerKAT radio telescope, following up radio transients including X-ray binaries, gamma-ray bursts, supernovae and cataclysmic variables. This has become the XKAT programme since the end of the LSPs. I am one of the lead observers in the collaboration, regularly reducing and interpreting data from multiple sources.
- **Arcminute Microkelvin Imager Large Array Collaboration.** As well as formally scheduling the AMI-LA I have an active role in transient followup with the AMI-LA, including source selection, observation planning and data reduction and interpretation.
- **Africa Millimetre Telescope.** I am a member of the Africa Millimetre Telescope (AMT) collaboration, which aims to deploy a ~ 15 metre dish in Namibia to be integrated into the Event Horizon Telescope (EHT). Outside of EHT operations the AMT will monitor transient and variable sources. I am part of a team implementing an automated response observing mode.
- **Event Horizon Telescope.** I am a member of the EHT collaboration, with a particular interest in data calibration and the integration of the Africa Millimetre Telescope into the EHT.

Professional Experience

- **2021 ALMA Ambassador ($10,000 awarded).** Chosen from a competitive pool of applicants to participate in the ALMA Ambassador training programme in 2021. After completing the training sessions I lead or co-lead 11 teaching workshops and hands on demonstration sessions teaching the North and South American astronomy communities interferometry techniques and how to best utilise ALMA for the Cycle 8 2021 call for proposals.
- **National Aeronautics and Space Administration Astrophysics (NASA) Theory Program** review panel member.
- Member of the Oxford astrophysics graduate admissions team where I review Astrophysics DPhil applications and interviewing high ranking candidates.
- **Reviewer** for Monthly Notices for the Royal Astronomical Society journal

References

- **Professor Rob Fender** (Astrophysics, Department of Physics, University of Oxford; rob.fender@physics.ox.ac.uk)
- **Professor Stephen Smart, CBE FRS MRIA** (Astrophysics, Department of Physics, University of Oxford; stephen.smartt@physics.ox.ac.uk)
- **Professor James Miller-Jones** (International Centre for Radio Astronomy Research, Curtin University; James.Miller-Jones@curtin.edu.au)