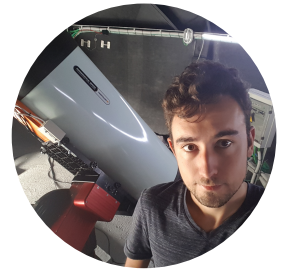


# JAMES BLAKE

## Postgraduate Student (Research)

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## EXPERIENCE

### Postgraduate Student (Research)

#### Department of Physics, University of Warwick

📅 September 2017 – Ongoing    📍 Coventry, United Kingdom

- **Supervisor:** Prof. Don Pollacco (Astronomy)
- **Funding:** Science and Technology Facilities Council (STFC)
- **Project outline:** *The debris population at geostationary orbit and the fate of aged spacecraft* | Development of a Python-based reduction and detection pipeline for use in multiple survey campaigns, searching for artificial debris at geostationary altitudes | Commissioning of a 36 cm Rowe-Ackermann Schmidt Astrograph, a debris-monitoring prototype instrument | Deep observations of the geostationary belt with the Isaac Newton Telescope, situated at the Roque de los Muchachos Observatory on the Canary Island of La Palma.

See [department webpage](#) for further detail.

### Summer Research Intern

#### Department of Physics, University of Warwick

📅 2015, 2016 & 2017    📍 Coventry, United Kingdom

Completed three 10-week summer projects as part of the Undergraduate Research Support Scheme (URSS):

- 2015 | **Supervisor:** Prof. Don Pollacco (Astronomy) | **Project:** *Attempted detection of weather patterns on HAT-P-7b*
- 2016 | **Supervisor:** Dr. David Armstrong (Astronomy) | **Project:** *Modelling the circumbinary candidate KOI-1741*
- 2017 | **Supervisors:** Dr. David Armstrong (Astronomy) & Dr. Hendrik Schäfer (Life Sciences) | **Project:** *Modelling panspermia in the TRAPPIST-1 system*

Extensive use of Python for data analysis and/or modelling.

### Outreach and Recruitment Ambassador

#### SROAS Office, University of Warwick

📅 March 2014 – Ongoing    📍 Coventry, United Kingdom

Group leader/ night staff on 10 residentials for year 9–12 students | Mentor for Sutton Scholars Programme | Tutor for GCSE/ A Level revision bootcamps | Delivered sessions on university life, careers and student finance at schools for year 7–12 students | Excellent customer service skills developed from campus tours and open days | Approachable telephone manner from student calling | Involved with Brilliant Club, UniTracks and Realising Opportunities initiatives, promoting widening participation at Russell Group universities | Event management for audiences of 200+ members of the public

### Work Experience Placement

#### Laser 2000 (UK) Ltd, Huntingdon

📅 August – September 2012    📍 Cambridgeshire, United Kingdom

Trained alongside two physics graduates | Underlying theory and sale of photonic equipment | Entrusted with digitization of legal documents | Research project investigating the effect of temperature on a laser beam

## CONTACT

Department of Physics  
University of Warwick  
Gibbet Hill Road  
Coventry  
CV4 7AL

## RESEARCH PROFILE

I am a second-year postgraduate research student in the Astronomy Group at Warwick University. My work is primarily focused on the detection and monitoring of artificial space debris.

I observe the night sky with optical telescopes and use this data to get accurate positions and brightnesses for satellites and debris.

Alongside this, I have a keen interest in the fields of exoplanets and astrobiology.

## EDUCATION

### Ph.D. in Space Science

#### University of Warwick

📅 September 2017 – Ongoing

**Supervisor:** Prof. Don Pollacco (Astronomy)

**Project:** *The debris population at geostationary orbit and the fate of aged spacecraft* (see Experience)

### M.Phys. in Physics

#### University of Warwick

📅 Sept 2013 – June 2017

**Grade:** First Class Honours

**Supervisor:** Dr. Jeremy Sloan (Microscopy)

**Project:** *Characterising low-dimensional 'extreme nanowires' of phase change materials in single-walled carbon nanotubes*

### A Levels & GCSEs

#### Wrenn Academy & Sixth Form

📅 September 2010 – June 2013

**A2:** Maths (A\*), History (A\*), Physics (A), Chemistry (A)

**AS:** Above (AAAA), Further Maths (A), Philosophy (B)

**GCSE:** 9(A\*) incl. Maths, Physics and English Language, 5(A) incl. Astronomy

## SCIENTIFIC PRESENTATIONS

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### Conference talks

2018 | “Hitching a ride on asteroids - are we the aliens?”  
ICUR, University of Warwick, UK linked to Monash University, Australia

2018 | “Panspermia: are we the aliens?”  
BCUR, University of Sheffield, UK

2016 | “Modelling the circumbinary candidate KOI-1741”  
ICUR, University of Warwick, UK linked to University of Leeds, UK

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### Invited talks & seminars

2018 | “The debris population at GEO and the fate of aged spacecraft”  
Warwick AstroSoc Research Symposium, University of Warwick, UK

2017 | “Extrasolar panspermia: are we the aliens?”  
Stratford Astronomical Society, Alderminster, UK – [article](#)

2016 | “Circumbinary planets: a closer look at Tatooine”  
Warwick AstroSoc Research Symposium, University of Warwick, UK

2016 | “Settling into university life”  
Welcome Week, University of Warwick, UK

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### Poster presentations

2018 | “Modelling panspermia in the TRAPPIST-1 system”  
Posters in Parliament, Palace of Westminster, UK

2016 | “Modelling the circumbinary candidate KOI-1741”  
URSS Showcase, University of Warwick, UK

2015 | “Searching for weather patterns on the hot giant HAT-P-7 b”  
ICUR, University of Warwick, UK

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## MEDIA

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2018 | **Warwick Newsroom** feature  
“Pondering panspermia - how life could travel through space”, invited to give an in-depth interview featured on Warwick’s press-release website – [article](#)

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2017 | **Press release (lead: David Armstrong)**  
First discovery of weather in a Hot Jupiter atmosphere, reached several hundred news outlets: [NewScientist](#) – [PBS](#) – [Space.com](#) – [The Conversation](#)

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## PUBLICATIONS LIST

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### Co-authored refereed journal articles

[Dynamical and biological panspermia constraints within multi-planet exosystems](#)  
Veras, D., Armstrong, D. J., Blake, J. A., Gutiérrez-Marcos, J. F., Jackson, A. P. & Schäfer, H., *Astrobiology*, 18, 9 (2018)

[Variability in the atmosphere of the hot giant planet HAT-P-7 b](#)  
Armstrong, D. J., de Mooij, E., Barstow, J., Osborn, H. P., Blake, J., & Fereshteh Saniee, N., *Nature Astronomy*, 1, 4 (2016)

## AWARDS

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-  **Posters in Parliament Winner**  
2018 | Awarded by Prof. Wyn Morgan (University of Sheffield) for most effective [poster](#) at the British Conference for Undergraduate Research – [article](#)
  -  **Significant Contribution**  
2016 | Awarded by Delyth Chambers, Director of Student Recruitment, Outreach and Admissions
  -  **Best Examination Performance**  
2011 | Awarded the Wrenn School Shield for Best Examination Performance at GCSE level
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## ACHIEVEMENTS

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- ✓ **Warwick Prospectus**  
2016 | Chosen to appear on the front covers of the Warwick prospectus and 50<sup>th</sup> anniversary rebranding document
  - ✓ **Open University Course**  
2012 | Completed a 10-credit Open University course entitled *Galaxies, Stars and Planets*
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## COMPUTING

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- **Operating systems**  
Windows, Linux
- **Programming languages**  
Python, C (basic), Bash (basic)
- **Main Python modules**  
numpy, scipy, matplotlib, os, glob, argparse, astropy, astroquery, sep, datetime, rebound
- **Software packages**  
IRAF, SAOImage DS9, AstrolImageJ, Astrometry.net, Origin Pro, LabView, CrystalMaker, TheSkyX (basic)
- **Version control**  
Git
- **Word processing**  
L<sup>A</sup>T<sub>E</sub>X, Microsoft Office, Libre Office

## OBSERVING

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### La Palma, Canary Islands

- **Near Infra-red Transiting ExoplanetS (NITES):**  
Remote observer | Follow-up photometry for exoplanet candidates | 25 nights
- **14'' Rowe-Ackermann Schmidt astrograph:**  
Prototype debris monitor | 12 nights
- **Isaac Newton Telescope:**  
Wide Field Camera | Faint debris | 8 nights

# ACTIVITIES

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## Societies

2016–17 | **Warwick Astronomy Society** | *Co-founder, Vice President and Treasurer*  
Organised and coordinated events for 80+ members, such as workshops in observational astronomy, academic talks and research showcases. Responsible for finance and sponsorship.

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2016–17 | **Warwick Physics Society** | *Academic Coordinator*  
Maintained revision guides, organised revision lectures in 12 modules and coordinated weekly help sessions at the Physics Café.

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2016–17 | **Outreach and Recruitment Ambassadors' Community** | *Co-founder*  
Established a platform enabling student ambassadors to participate in additional training and social events. Liaised with the Head of Outreach and Widening Participation and Senior Assistant Registrar to launch the concept. Organised a celebration event for 100+ staff and ambassadors.

## Teaching

2017–Ongoing | **Laboratory marking** | *Radio astronomy*  
Marking of notebooks for a 2<sup>nd</sup> year laboratory experiment.

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2017–18 | **Student co-supervision** | *Jonathan Roberts & Aharan Manoharan*  
Assisted Prof. Don Pollacco with supervision of M.Phys. project students.

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2016–18 | **Revision lectures** | *1<sup>st</sup> & 2<sup>nd</sup> year*  
Delivered revision lectures for 7 undergraduate modules, covering quantum mechanics, thermodynamics, stellar physics and several other core topics.

## Outreach

2018–Ongoing | **Planetarium**  
Assisting with Warwick's portable planetarium show, visiting several schools in the local area and presenting a range of educational shows.

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2015–18 | **Summer schools and residentials**  
Responsible for the pastoral care of year 9–12 students across 10 residentials, both at Warwick University and Queen Mary's University, London. Organised activities, presented sessions and coordinated large-scale events for participants and staff. Received extensive training in safeguarding.

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2014–17 | **School visits**  
Delivered sessions entitled "Future pathways", "What are my options?", "Facilitating independence", and "Access to higher education" to groups of year 7–12 students at 10+ Widening Participation schools across Coventry, Rugby, Leamington, and Birmingham.

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2014–17 | **Miscellaneous events**  
Represented Warwick at various HE fairs across the UK, including UCAS fairs in Bradford and London. Visited local Widening Participation schools for parent information evenings, careers fairs and HE awareness sessions. Coordinated Science Campus days for year 5–6 pupils and the Young Scientist Competition (2015).

## Other

2013–Ongoing | **Student Staff Liaison Committee**  
Platform connecting the students and staff of the Department of Physics. Served as Secretary (2014–15) and Chair (2017–18).

# PROPOSALS

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2018 | **Dstl–AFOSR Initiative**  
Funding for a studentship aimed at applying machine learning techniques within space situational awareness (lead: Don Pollacco)

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2018 | **Isaac Newton Telescope**  
Awarded 8 dark nights to scan the geostationary belt (lead: Don Pollacco)

# ADDITIONAL ROLES

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- **Sales Assistant (Holiday Temp)**  
Blue Inc, Wellingborough  
December 2014 – June 2016
- **Tutor in Mathematics**  
Barr's Hill School, Coventry  
December 2014 – April 2015
- **Fundraiser (St John Ambulance)**  
Wesser Ltd, Carmarthenshire  
July – August 2014

# REFERENCES

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Available on request.