

# LILI ALDERSON

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School of Physics, University of Bristol,  
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## EDUCATION

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**PhD in Astrophysics** Sep 2020 - present  
*University of Bristol*

- Supervisor: Dr. Hannah Wakeford
- Research Focus: Exoplanet Atmospheres with the Hubble and James Webb Space Telescopes

**MPhys Astrophysics with a Year Abroad** Sep 2016 - Jul 2020  
*University of Southampton & Center for Astrophysics | Harvard-Smithsonian*

- Classification: First Class
- Thesis Title : LRG-BEASTS: Ground-based Transmission Spectroscopy of the Atmosphere of the Highly Inflated Hot-Saturn WASP-21b
- One of the 5 best academically performing students and therefore selected to spend my final year in research at the Center for Astrophysics | Harvard-Smithsonian, in Cambridge, MA, USA
- Selected as one of the 12 best academically performing students for the Design and Observation in Astronomy module, involving a week observing at Teide Observatory, Tenerife, Spain

**Prior Education** Sep 2009 - Jul 2016  
*Bournemouth School for Girls*

- A-Levels in Physics (A), Mathematics (A) and Geography (B); AS-Level in French (B)
- 12 GCSEs (8 A\*s, 4 As), including English (A\*) and Maths (A\*)

## CONFERENCES AND PROFESSIONAL TALKS

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### Contributed Conference Talks

- Jan 2021 - UKRI STFC Introductory Course in Astronomy for New Research Students, Armagh Observatory and Planetarium, UK (Online) - “Measuring the Atmosphere of WASP-21b”

### Contributed Conference Posters

- Jul 2020 - Exoplanets III, Heidelberg, Germany (Online) - “LRG-BEASTS: Ground-based Detection of Sodium and a Steep Optical Slope in the Atmosphere of the Highly Inflated Hot-Saturn WASP-21b”
- Jan 2020 - 235th American Astronomy Society (AAS) Meeting, Honolulu, HI, USA - “Transmission Spectroscopy of the Highly Inflated Hot Saturn WASP-21b” -

### Seminars and Colloquia

- May 2020 - Exoplanet Presentation Seminar Series, Center for Astrophysics | Harvard-Smithsonian, MA, USA (Online) - “LRG-BEASTS: Ground-based detection of Na and aerosols in the atmosphere of WASP-21b”
- May 2020 - STARGATE Collaboration Seminar (Online) - “LRG-BEASTS: Ground-Based Transmission Spectroscopy of the Highly Inflated Hot Saturn WASP-21b”

## PREVIOUS ACADEMIC PROJECTS

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### **Characterising Exoplanet Atmospheres**

Sep 2019 - Jul 2020

*Center for Astrophysics | Harvard-Smithsonian*

- Worked to characterise the atmosphere of the exoplanet WASP-21b via transmission spectroscopy.
- Extensive use of Python to reduce and fit transit light curves and atmospheric models
- Work formed my master's thesis, and was published in MNRAS

### **Undergraduate Observational Astronomy Project**

March - May 2018

*University of Southampton & Teide Observatory*

- Organised 6 nights of observations for 12 undergraduate students, operating a variety of telescopes to take data for my own and other projects
- Data used to calculate the total and surface area normalised Star Formation Rates (SFR) of late-type spiral galaxies to analyse how SFR changes with galaxy spirality.
- Work presented as both a report and in a poster presentation session to PhD students and academics at the University of Southampton.

### **Gamma Ray Telescope Design**

March 2018

*Universidad de La Laguna, Tenerife, Spain*

- Co-project manager of a team of eight undergraduate and masters students from University of Southampton, Universidad de La Laguna and University College Dublin, designing a gamma ray telescope to study nucleosynthesis in supernovae
- Responsibilities as co-project manager included ensuring team stuck to deadlines and preparing team for daily assessment meetings
- Personal tasks included selecting target supernovae and assessing the sensitivity of the design.
- Work presented as a final presentation to university staff and other project teams.

## TEACHING AND OUTREACH

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### **Graduate Author**

Jan 2021 - present

*Astrobites.org*

- Regular writer of astrophysics research paper summaries aimed at undergraduate students

### **Astrophysics Postgraduate Student Representative**

Oct 2020 - present

*University of Bristol*

- Regular attendance at Physics Postgraduate Staff-Student Liaison Committee meeting, representing astrophysics postgraduate students to the wider graduate school community

### **Teaching Support Assistant**

Oct 2020 - present

*University of Bristol*

- PHYS10600 Stars & Planets, 1st Year undergraduate course

### **Student Ambassador**

Jul 2019

*University of Southampton*

- Gave subject talks at university open days to audiences of up to 400 prospective students and parents
- Gave tours of the Physics facilities and rooftop observatory to groups of up to 20 visitors
- Held "Virtual Open Day" webinar presentations along with academic staff

## **Student President of the School of Physics and Astronomy**

Jun 2018 - Jul 2019

*University of Southampton*

- Elected by peers to oversee student-staff relations, managing a team of 12 course representatives
- Organised Staff-Student Liaison Committee meetings to address and resolve issues raised within courses, alongside weekly meetings with the Director of Programs of the school
- Surveyed students on a range of issues, presenting results to academic and administrative staff

## **ATTENDED WORKSHOPS**

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- **UKRI STFC Introductory Course in Astronomy for New Research Students**, Armagh Observatory and Planetarium, UK (Online), Jan 2021
- **Introductory Astrobiology**, The Open University, UK, (Online), Nov 2020

## **AWARDS**

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- **2021 2nd Prize, Best Student Contribution Presentation**, UKRI STFC Introductory Course in Astronomy for New Research Students, Armagh Observatory and Planetarium
- **2020 Most Outstanding Performance on an MPhys Degree**, School of Physics and Astronomy, University of Southampton
- **2020 Best Project by a Year Abroad / Final Year Research Finalist** School of Physics and Astronomy, University of Southampton
- **2019 Faculty Academic Rep Award**, University of Southampton Student Union Academic Awards

## **PUBLICATIONS**

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- LRG-BEASTS: ground-based detection of sodium and a steep optical slope in the atmosphere of the highly inflated hot-saturn WASP-21b,  
**Alderson, L.**, et al. 2020, MNRAS, 497, 5182