

Helen Giles

Until March 2020, a postdoctoral researcher at the Leibniz Institute for Astrophysics Potsdam. 6+ years experience specialising in exoplanet discovery & characterisation and stellar activity. Astronomer interested in devising new tools and advancing our understanding of exoplanets and their host stars.

EDUCATION

UNIVERSITÉ DE GENÈVE | PHD IN ASTROPHYSICS (TRES BIEN)

📅 September 2015 – June 2019 | 📍 Geneva, Switzerland

UNIVERSITY OF ST ANDREWS | MPhys IN ASTROPHYSICS (FIRST CLASS)

📅 September 2011 – June 2015 | 📍 St Andrews, Scotland

RESEARCH EXPERIENCE

POSTDOCTORAL RESEARCHER | SUPERVISOR: PROF. KATJA POPPENHAEGER

📅 October 2019 – March 2020 | 📍 Leibniz Institute for Astrophysics Potsdam, Potsdam, Germany

- Converting code for measuring starspot lifetimes from fortran 95 to python.
- Measuring starspot lifetimes for more complex light curves than previously done with *Kepler* (publications as co-author in prep).
- Studying starspot lifetimes of AB Dor using TESS continuous light curves.

CHEOPS PHD STUDENT | SUPERVISORS: PROF. STEPHANE UDRY & DR. CHRISTOPHE LOVIS

📅 September 2015 – June 2019 | 📍 Observatoire de Genève, Geneva, Switzerland

Exoplanet Detection

- Developed a pipeline to reduce and analyse publicly-released data from the K2 mission.
- Initiated follow-up radial velocity observations of planet candidates using the Swiss Telescope in La Silla, Chile.
- Two planet discoveries: K2-140b (**Giles et al. 2018a**) and K2-311b (**Giles et al. 2018b**), the longest period transiting planet.

Stellar Activity

- Continued studying the lifetimes of starspots on stars observed by the *Kepler* mission.
- The results were published in the Monthly Notices of the Royal Astronomical Society, **Giles et al. (2017)**.
- Measured the lifetimes of starspots on stars observed by various missions (e.g. López-Morales et al. 2016, Haywood et al. 2018, Morris et al. 2019, Nava et al. 2019 & Dubber et al. 2020).

MASTER'S PROJECT | SUPERVISORS: PROF. ANDREW COLLIER CAMERON & DR. RAPHAELLE HAYWOOD

📅 February 2015 – April 2015 | 📍 School of Physics & Astronomy, University of St Andrews, St Andrews, Scotland

- Measured the starspot lifetimes and rotational periods of 2000+ stars observed by the *Kepler* mission by fitting their autocorrelation functions using MCMCs.
- Developed a method to estimate starspot lifetimes for FGKM stars based on effective temperature and light curve scatter.

SURF FELLOW | MENTORS: PROF. CHAS BEICHMAN & DR. RACHEL AKESON

📅 June 2014 – August 2014 | 📍 Caltech, Pasadena CA, USA

- Searched for previously undiscovered transits of planets in *Kepler* data, specifically for transits which only appeared once or twice in a given light curve.
- This resulted in a long-period (2.8 years) Saturn-sized planet discovery (Beichman, **Giles et al., 2018**).

UNDERGRADUATE SUMMER RESEARCH STUDENT | SUPERVISOR: DR. CHRISTIANE HELLING

📅 June 2013 – August 2013 | 📍 School of Physics & Astronomy, University of St Andrews, St Andrews, Scotland

- Calculated nucleation rates for TiO₂ and improved model atmospheres for Brown Dwarfs.
- Resulted in co-authored work Lee, Helling, **Giles, et al. (2015)**.

TALKS & POSTERS

2019 RAS SPECIALIST DISCUSSION MEETING 📍 LONDON, UK

Talk - Hijacking exoplanet missions for the stellar cause

2019 TESS DATA WORKSHOP 📍 BALTIMORE MD, USA

Invited Talk - Monotransits

2018 COOL STARS 20 📍 BOSTON MA, USA

Invited Splinter Talk - Starspots and their longer lives on cool stars

2018 SAGAN WORKSHOP 2018 📍 PASADENA CA, USA

Poster - The Longest Period Transiting Planet Candidate from K2

2018 EXOPLANETS II 📍 CAMBRIDGE, UK

Poster - The Longest Period Transiting Planet Candidate from K2

2017 KNOW THY STAR, KNOW THY PLANET 📍 PASADENA CA, USA

Talk - Determining Starspot Lifetimes from Photometry to feed Models of Stellar Activity in Exoplanet RV Surveys

2017 CHEOPS 5TH WORKSHOP 📍 SCHLOSS SEGGAU, AUSTRIA

Talk - K2 Discoveries as Precursors for CHEOPS Follow-Up Candidates

2017 TRANSITING EXOPLANETS 📍 KEELE, UK

Poster - EPIC 228735255b: A tale of an eccentric transiting hot Jupiter

2017 UK EXOPLANET MEETING 📍 ST ANDREWS, SCOTLAND

Talk - Determining Starspot Lifetimes from Photometry to feed Models of Stellar Activity in Exoplanet RV Surveys

Poster - A Transit-Searching Pipeline for CHEOPS Candidates in K2

2016 CHEOPS 4TH WORKSHOP 📍 GENEVA, SWITZERLAND

Invited Talk - "What's eating those starspots?": Determining a Relationship Between Starspot Size and Their Decay Timescale With Respect to Stellar Spectral Type

2016 COOL STARS 19 📍 UPPSALA, SWEDEN

Plenary Talk - "What's eating those starspots?": Determining a Relationship Between Starspot Size and Their Decay Timescale With Respect to Stellar Spectral Type

SKILLS

Observing	Three observing runs, totalling 34 nights, on the Swiss telescope in La Silla, Chile Several nights on the James Gregory Telescope at the University of St Andrews, Scotland
Teaching	Proposed and supervised an undergraduate student research project at the University of Geneva
Outreach	Performed tours of the facilities and presented the research conducted at Geneva Observatory Consultant for <i>The Story of the Universe</i> , Arcturus Publishing Given interviews to media outlets on new research Written an article on Exoplanets for a newsletter aimed at 16-18 year old IOP members
Important Roles	Representative of 5th Year Astronomers at the University of St Andrews Co-organiser of Exoplanet Seminar series at Observatoire de Genève Member of the Local Organising Committee (LOC) of the CHEOPS 4th Science Workshop Co-organiser of a splinter session on stellar activity in current and future surveys at Cool Stars 21
Referee	Referee for AAS Journals & MNRAS, and referee for OPTICON proposal
Memberships	Fellow of the Royal Astronomical Society, Member of the European Astronomical Society, Member of NASA Study Analysis Group (SAG) 21 investigating the effect of stellar contamination on space-based transmission spectroscopy
Code/Software	Python 2 & 3, Fortran 90/95, L ^A T _E X, Command Line Tools, Mac OS X, Linux, Mathematica
Languages	English (fluent), Swedish (working proficiency)
Nationality	British-Swedish Dual Nationality

AWARDS & HONOURS

2017 CHEOPS 5TH SCIENCE WORKSHOP BURSARY 📍 OBSERVATOIRE DE GENEVE, GENEVA, SWITZERLAND
Conference fee (€151) and accommodation costs were covered

2015 DEANS LIST 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS, SCOTLAND

2015- OGDEN TRUST UNDERGRADUATE SCHOLARSHIP 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS,
2011 SCOTLAND

£1500 award each year of my undergraduate course

2014 SURF FELLOWSHIP 📍 CALTECH, PASADENA CA, USA
\$6000 award to cover costs of summer research project

2013 ROYAL ASTRONOMICAL SOCIETY BURSARY 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS, SCOTLAND
£1080 award to cover costs of summer research project

2012 MEDAL FOR HIGHEST ATTAINMENT 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS, SCOTLAND

2012 DEANS LIST 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS, SCOTLAND

2012 SIDNEY PERRY FOUNDATION SCHOLARSHIP 📍 UNIVERSITY OF ST ANDREWS, ST ANDREWS, SCOTLAND
£1000 award to cover undergraduate degree costs

REFERENCES

👤 PROF. ANDREW COLLIER CAMERON | PROFESSOR

📍 Centre for Exoplanet Science, School of Physics & Astronomy, Uni. of St Andrews, North Haugh, St Andrews, KY16 9SS

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👤 DR. CHRISTOPHE LOVIS | SENIOR LECTURER

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👤 DR. DANIEL BAYLISS | ASSISTANT PROFESSOR

📍 Department of Physics, University of Warwick, Coventry, CV4 7AL

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