

# Lauren Doyle

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## Professional Appointments

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### Postdoctoral Research Fellow

Sep. 2020 - present

UNIVERSITY OF WARWICK, COVENTRY, UK

- Using transiting planets to probe and (spectroscopically) resolve stellar surfaces, working with Dr Heather Cegla
- Funded by a UKRI Future Leader Fellowship

## Education

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### PhD in Mathematics

Oct. 2016 - Jul. 2020

NORTHUMBRIA UNIVERSITY · ARMAGH OBSERVATORY AND PLANETARIUM, UK

Supervisor: Dr Gavin Ramsay

Title: Solar and Stellar Flares and Their Connection

- Funded by the Science and Technology Facilities Council
- Thesis Submitted March 2020; Defended May 2020; July 2020

### MSc (Research) in Physics and Astronomy

Oct. 2015 - Sept. 2016

UNIVERSITY OF GLASGOW, UK

Supervisor: Prof Lyndsay Fletcher

Title: Spectroscopic Studies of Arcade Flares with EIS and EVE

- Thesis Submitted September 2016 ; Graduated June 2017

### BSc (Hons) in Physics and Astronomy

Sept. 2011 - June 2015

UNIVERSITY OF GLASGOW, UK

## Background & Interests

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My main research interests lie in the physical processes which generate flares on low mass stars and the Sun. I kick started my academic career in solar flare research investigating Doppler velocities through spectral analysis in plasma flows from Hinode/EIS and SDO/EVE. When I began my PhD at Armagh, I developed an interest in the flare mechanisms on other stars and how they compare to what we already know from the Sun. Throughout my PhD I have kept an interest in solar flare physics and this has provided me a unique insight to my work on flares in low mass stars.

## Technical Skills

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**Programming** IDL (including SolarSoft)  
MatLab · Python · Latex

**Operating Systems** Mac OSX · Linux · Windows

**Practical Skills** Experience using telescope apparatus and various types of software. This includes a 10 day observing run at the Swedish Solar Telescope (SST) in La Palma where I helped to lead spectroscopic observations of various features and phenomena on the solar disk. I also have experience working with solar flare models.

## Publications

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### REFEREED

Doyle L., Ramsay G., Doyle J. G., Wu K., Scullion E., (2018), *Investigating the Rotational Phase of Stellar Flares on M dwarfs using K2 Short Cadence Data*, MNRAS, 480 (2), 2153 – 2164

Doyle L., Ramsay G., Doyle J. G., Wu K., (2019), *Probing the Origin of Stellar Flares on M dwarfs Using TESS Sectors 1 - 3*, MNRAS, 489, 437 – 445

Doyle L., Wyper P., Scullion E. et al., (2019), *Multi-wavelength Observations and 3D MHD Modelling of a Confined Helical Jet Launched by the Eruption of a Filament*, ApJ, 887 (2), 246

Doyle L., et al., (2020), *Superflares and Stellar Variability on Solar-Type Stars Using TESS*, MNRAS, 494 (3), 3596 – 3610

## REFEREED (CO-AUTHOR)

Ramsay G., Doyle J.G., Doyle L., (2020), *TESS observations of southern ultrafast rotating low-mass stars*, MNRAS, 497 (2), 2320-2326,

## CONFERENCE PROCEEDINGS

Doyle L., Ramsay G., Doyle J. G., (2018), *Searching for the Origin of Flares in M dwarfs*, The 20th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun, Boston, USA, [arXiv:1811.06594](https://arxiv.org/abs/1811.06594)

Doyle L., et al., (2019), *Exploring Flaring Behaviour on Low Mass Stars, Solar-type Stars and the Sun*, IAU Symposium 354: Solar and Stellar Magnetic Fields, Copiapo, Chile, Proceedings of the International Astronomical Union, 15(S354), 384-391

## Conferences, Meetings and Workshops

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### ORAL PRESENTATIONS

- July 2020 **UKSP Discussion Days (invited)**, UK
- May 2020 **AOP Online Seminar**, Armagh, UK
- Nov 2019 **Invited Talk at Northumbria University**, Newcastle, UK
- Jul 2019 **IAU Symposium 354: Solar and Stellar Magnetic Fields**, Copiapo, Chile
- Mar 2019 **The Kepler & K2 Science Conference V**, Los Angeles, USA
- Jul 2018 **The 20th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun**, Boston, USA
- Jun 2018 **European Solar Physics Online Seminar**, Europe
- Jan 2018 **Dwarf Stars and Clusters with K2: a Workshop**, Boston, USA
- Aug 2017 **Royal Astronomical Society, National Astronomy Meeting**, Hull, UK

### POSTER PRESENTATIONS

- Sep 2019 **The Irish National Astronomy Meeting (INAM)**, Armagh, Northern Ireland, UK
- Jul 2018 **The 20th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun**, Boston, USA
- Jun 2016 **Royal Astronomical Society, National Astronomy Meeting**, Nottingham, UK

### TUTORIALS, WORKSHOPS AND OTHER

- Mar 2020 **ESO Proposal Writing Workshop**, Dublin, Ireland
- Mar 2019 **Building Early Science with TESS**, Chicago, USA
- Dec 2018 **DKIST Science Use Case Workshop**, New Mexico, USA
- Sep 2018 **Python in Astronomy Workshop**, Hull, UK
- Jun 2017 **Ten Day Observing Run at the Swedish Solar Telescope (SST)**, La Palma, Spain
- Nov 2016 **FCHROMA Workshop: Observations and Modelling of Solar Flares**, Wroclaw, Poland
- Sep 2016 **Introduction to Solar System Plasma Physics Summer School**, St Andrews, UK

## Grants/Awards

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- Nov 2015 **British Science Week Grant**, £350 funding to run multiple observatory tours for the public during British Science Week 2016.
- Oct 2016 **Science Technology Facilities Council Student Scholarship**, Research Scholarship: competitive scholarship that awarded full tuition and maintenance for PhD study. Total value approx £61,000
- Feb 2018 **Royal Astronomical Society Small Grant Award**, £900 travel support to attend Cool Stars 20 in Boston, USA
- Apr 2018 **The 20th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun**, \$600 to cover the conference fee
- Jan 2019 **Building Early Science with TESS**, \$400 to cover accommodation costs for the workshop in Chicago, USA
- Jan 2019 **Institute of Physics Bursary from Plasma Physics Group**, £300 travel support to attend the 354th IAU Symposium on Solar and Stellar Magnetic Fields in Copiapo, Chile

Feb 2019

**International Astronomical Union Travel Grant**, €550 travel support to attend the 354th IAU  
Symposium on Solar and Stellar Magnetic Fields in Copiapo, Chile

## Outreach

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During my PhD I have organised, carried out and assisted in a wide range of activities at the Armagh Observatory and Planetarium. This has included taking planetarium shows to local schools and events, public talks and workshops. One of the biggest successes was the 'Hand on Science' Workshop which runs during school holidays for the public. I organised and put together 6 different workshops including three demonstrations ranging from comet making to gravitational waves and The Sun. Additionally, I ran workshops at the local Armagh Museum which brought together groups of children aged 8-12 from local schools, which involved talks and discussions along with practical activities to take the children on an adventure around the universe. I have been an active member of Armagh's Project Juno Committee since its beginning in early 2017. This project is an initiative run by the Institute of Physics to promote gender equality in Physics institutions across the UK and Ireland. As a member I have been involved in various activities including 'Women in Science' talks to local schools and Career events tailored to encourage young females to pursue STEMNET careers.