

James Jackman

School of Earth and Space Exploration, Arizona State University, Tempe, AZ, 85287, USA

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Current Position **Arizona State University** - Postdoctoral Research Scholar. Working with
2020 - Present Professor Evgenya Shkolnik on the optical and UV characteristics of stellar flares.

Education
2016- 2020 **The University of Warwick** - PhD in Astrophysics supervised by Professor Peter Wheatley. PhD Title: “Detection of Stellar Flares and a Transiting Brown Dwarf with the Next Generation Transit Survey (NGTS)”

Research Interests

- Stellar flaring activity, in particular of ultracool dwarfs and as a function of age using open cluster data
- Transiting brown dwarfs discovered in wide-field exoplanet surveys

First Author Publications

- Testing the UV predictions of white-light flare studies with GALEX and TESS, Jackman et al., in prep.
- Stellar flares in the Next Generation Transit Survey, Jackman et al., 2021, MNRAS, 504, 3246
- Stellar flares from blended and neighbouring stars in Kepler short cadence observations, Jackman et al. 2021, MNRAS, 502, 2033
- NGTS Clusters Survey II - White-light flares from the youngest stars in Orion, Jackman et al, 2020, MNRAS, 497, 809
- NGTS-7Ab: An ultra-short period brown dwarf transiting a tidally locked and active M star, Jackman et al 2019, MNRAS, 489, 5146
- Detection of a giant white-light flare on an L2.5 dwarf with the Next Generation Transit Survey, Jackman et al, 2019, MNRAS Letters, 485, L136
- Detection of a giant flare displaying quasi-periodic pulsations from a pre-main sequence M star with NGTS, Jackman et al, 2019, MNRAS, 482, 5553
- Ground-based detection of G star superflares with NGTS, Jackman et al, 2018, MNRAS, 477, 4655

Departmental Talks

- NSO Seminar (Invited), National Solar Observatory, USA, 12th October 2021
- Carnegie EPL Astronomy Seminar (Invited), Carnegie EPL, USA, 8th October 2021
- SESE Colloquium, Postdoc Presentations, Arizona State University, USA, 15th September 2021
- CfA Exoplanet Lunch (Invited), Harvard CfA, USA, 10th December 2019
- CfA Stars & Planets Seminar (Invited), Harvard CfA, USA, 9th December 2019
- ESO Offices (Invited), Santiago, Chile, 11th October 2019
- Department Seminar, Arizona State University, Phoenix, USA 26th July 2019
- Department Seminar, University of Nevada, Las Vegas, USA 23rd July 2019
- Department Seminar, Boston University, USA 12th July 2019
- Exoplanet Lunch Talk, MIT, USA, 11th July 2019
- Group Seminar, Harvard CfA, USA, 10th July 2019

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- Extrasolar Planets Seminar, NASA Goddard, USA, 27th June 2019
- Astronomy Group Seminar, University of Delaware, USA, 25th June 2019

Conference Talks

- “Testing the UV predictions of white-light flare models using TESS and GALEX” (CHAMPs Exoplanet Meeting, Virtual, January 2022)
- “Studying the Disconnect Between UV and White-Light Flares with TESS and GALEX” (TESS Science Team Meeting #26, December 2021)
- “The Disconnect Between UV and White-Light Flares in Low-mass Stars” (TESS Science Conference II, August 2021, Talk Linked)
- “The Disconnect Between UV and White-Light Flares in Low-mass Stars” (ERES 2021, Virtual, May 2021)
- “The Biggest Flares from the Smallest Stars with NGTS” (South East Exoplanet Meeting, London, December 2019)
- “Constraining The Effects Of Stellar Flares with NGTS” (8th Astrobiology Society of Britain Conference, Newcastle, April 2019)
- “Constraining The Effects Of Stellar Flares on Exoplanet Habitability with NGTS” (ERES IV, Penn State, USA, June 2018)
- “High Cadence Detections of Stellar Flares with NGTS” (EWASS, Liverpool, April 2018)
- “Stellar Superflares In NGTS” (51st ESLAB Symposium “Extreme Habitable Worlds”, ESA/ESTEC, Noordwijk, Netherlands, December 2017)

Conference Posters

- “The Disconnect Between UV and White-Light Flares in Low-mass Stars” (MACH Workshop on Global Magnetic Fields and Ion Escape, Virtual, June 2021)
- “The Disconnect Between UV and White-Light Flares in Low-mass Stars” (Stars and Planets in the UV, ASU/Virtual, May 2021)
- “The Disconnect Between UV and White-Light Flares in Low-mass Stars” (Cool Stars 20.5, Virtual, March 2021)
- “The Largest Flares From the Smallest Stars” (Sagan Summer Workshop, Caltech, Pasadena, USA, July 2019)
- "The Largest Flares From the Coolest Stars" (RAS Specialist Meeting, London, April 2019)
- "Stellar Flares and Exoplanet Habitability with NGTS" (UK Exoplanet Community Meeting, Oxford, March 2018)

Proposals - Funded

- Swift Cycle 18 GI program “Do Optically Quiet Stars Shout in the NUV?” - P.I., fully accepted
- Swift Cycle 18 GI program “Understanding the Disconnect Between NUV and White-Light Flare Emission From Low-Mass Stars With CR Dra” - P.I., fully accepted
- TESS Cycle 4 GI program “Bridging The Gap Between White-Light And UV Flares In Low-Mass Stars” - P.I., awarded \$70,000
- HST Cycle 29 Archival Research program “Probing The Evolution Of White-Light And FUV Flares From Low-Mass Stars With HST And TESS” - P.I., awarded \$105,748

Proposals - Other

- TESS Cycle 4 GI program “Understanding The Evolution Of White-Light And UV Flare Emission In Low-Mass Stars With HST And TESS” - P.I., partially accepted
- TESS Cycle 3 program “Stellar Flaring Activity Through Time Using Open Clusters” - P.I., partially accepted

Services

- Referee for ApJ and Solar Physics

Press Releases

James Jackman

- Explosion on Jupiter-sized star ten times more powerful than ever seen on our Sun - on our detection of the first white-light flare seen from an L2.5 dwarf, a star around the size of Jupiter.
- A baby star's fiery tantrum - on our detection of a giant stellar flare exhibiting QPPs from a pre-main sequence star

Experience

- Expert in the detection and characterisation of stellar flares using high cadence photometry from wide-field surveys, having led this work for the NGTS consortium and transferred this work to GALEX UV observations.
- Skilled in the use of spectroscopic data to study flares and measure their temperatures and emission features.
- Led the discovery of NGTS-7Ab, a 16.2 hour period brown dwarf transiting a tidally locked and active M star. Developed custom code packages for the analysis of this blended triple system. These include multi-star SED fitting, transit fitting across different instruments with differing dilution factors, custom fitting of HARPS CCFs.
- Developing code packages for data reduction pipelines, in particular a cross-matching pipeline to obtain broadband photometry for all sources from catalogues such as Gaia, 2MASS and APASS.
- Attending conferences and internal meetings and presenting results to both expert and general audiences.
- Chairing sessions at professional conferences, taking questions from audience members and making sure speakers stay within their allotted time.

Skills - Computing/Programming

- Experienced in the Python programming language, having developed many pipelines and analysis packages for use in my work
- Intermediate knowledge of the STILTS programming language
- Skilled in Microsoft Office

Teaching - Undergraduate Lab Demonstration (2016-2019)

- Sole demonstrator for two experiments, teaching up to 8 pairs of students at any one time
- Responsible for explaining the context for each experiment and answering student queries
- Responsible for maintaining equipment for each experiment

Other

- 23 nights observing experience
- Full current clean driving license. Valid for both full car and motorcycle use
- Basic knowledge of German (B at GCSE)