Paul James Wright

CONTACT INFORMATION Rm 614, Kelvin Building University of Glasgow Glasgow, G12 8QQ United Kingdom Work: +44 (0)14133 08855 Web: www.pauljwright.co.uk Email: paul.wright@glasgow.ac.uk Publication List: SAO/NASA ADS

RESEARCH INTERESTS

My interests range from stellar to solar physics; my main interests lie in the heating of the solar atmosphere, including active regions and loops. I have expertise in the analysis of spectroscopic and narrowband Extreme Ultra-Violet (EUV) and X-ray data from the *Solar Dynamics Observatory* and *Hinode*, in addition to the hard X-ray (HXR) observations from *NuSTAR*'s heliophysics campaign. Furthermore, I am currently investigating the modelling of coronal loop light-curves using the EBTEL (Enthalpy-Based Thermal Evolution of Loops) hydrodynamics code with particular interest in the weak bremmstrahlung components, and the relevance for future soft to hard X-ray instruments and missions.

EDUCATION

University of Glasgow, Glasgow, UK

2014 – present (expected early 2018)

Ph.D. Solar Physics

Thesis Topic: *The Energetics of Small Flares and Brightenings* Advisers: Dr Iain G. Hannah, Dr Alexander MacKinnon

University of Southampton, Southampton, UK

2010 - 2014

MPhys Astrophysics with a year abroad

First-class honours (1:1) Adviser: Professor Malcolm Coe

Harvard University/Harvard-Smithsonian CfA, Cambridge, MA, USA

2013 - 2014

MPhys Astrophysics with a year abroad

Thesis Topic: Superflare Rates of Solar-Like Stars Advisers: Dr Steven H. Saar, Dr Jeremy J. Drake

CURRENT ACADEMIC APPOINTMENT

APPOINTMENTS

Affiliate Staff Member, University of Glasgow SUPA School of Physics and Astronomy

2017 – present

PREVIOUS Post-G

Post-Graduate Research Assistant, University of Glasgow

2014 - 2017

SUPA School of Physics and Astronomy

Project: The Energetics of Small Flares and Brightenings

- Analysed observations of the Sun with *NuSTAR*, a telescope not designed for heliophysics. These observations are the most sensitive of their kind and have resulted in numerous, wide-ranging, highly-collaborative peer-reviewed publications.
- Analysed non-flaring coronal time-series in pursuit of signatures of the coronal heating mechanism. Techniques included time-lag analysis (cross-correlation), Fourier analysis, wavelet analysis, and local intermittency measure (LIM).
- Studied the temperature distribution of the solar atmosphere through the recovery of an ill-posed inverse problem (the differential emission measure, DEM) using techniques such as Tikhonov regularisation, Markov chain Monte Carlo, and sparsity.
- The press-release image produced from the *NuSTAR* observations obtained for Wright *et al.* 2017 was published by numerous news outlets, and is one of the five iconic images from *NuSTAR*'s first five years in space.

Collaborators: Dr Iain Hannah, Dr Alexander MacKinnon

Visiting Researcher, NASA Goddard Space Flight Center (GSFC)

2016

Heliophysics Science Division

• Explored the possibility of implementing DEM maps in the Helioviewer project, and their usefulness as an input for various established analysis techniques.

Collaborators: Dr Nicholeen Viall, Dr Jack Ireland

Research Scholar, Harvard-Smithsonian Center for Astrophysics (CfA)

2013 - 2014

Solar and Stellar X-Ray Group

- Designed and implemented a sophisticated stellar flare detection routine for long-cadence (30 mins) *Kepler* data obtained from a proprietary set of spectroscopically verified solar-type stars in three open clusters.
- A preliminary version of this work had coverage by Science, and The Smithsonian Magazine.

Collaborators: Dr Steven Saar, Dr Søren Meibom, Dr Jeremy Drake, Dr Vinay Kashyap

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Previous	Summer Research Intern, University of Southampton	2013	
ACADEMIC APPOINTMENTS (CONT.)	 Astronomy Group Investigated the presence of double blue straggler sequences in globular cluste Space Telescope (WFC3) data. Collaborators: <i>Dr Andrea Dieball</i> 	rs using Hubble	
REFEREED JOURNAL PUBLICATIONS	[1] Marsh, A. J., Smith, D. M., Glesener, L. et al 2017. First NuSTAR Limits on Quiet Sun Hard X-Ray Transient Events, ApJ, 849, 131		
	[2] Wang, J., Simões, P. J. A., Jeffrey, N. L. S. et al 2017. Observations of Reconnection Flows in a Flare on The Solar Disk, ApJL, 847, L1		
	[3] Wright, P. J. , Hannah, I. G., Grefenstette, B. W., et al 2017. Microflare Heating of a Solar Active Region Observed with NuSTAR, Hinode/XRT, and SDO/AIA, ApJ, 844, 132		
	[4] Kuhar, M., Krucker, S., Hannah, I. G., et al 2017. Evidence of Significant Energy Input in the Late Phase of a Solar Flare from NuSTAR X-ray Observations, ApJ, 835, 6		
FIRST AUTHOR	[5] Wright, P. J., Hannah, I. G., Viall, N. M., et al		
PUBLICATIONS IN PREPERATION	[6] Wright, P. J., Saar, S. H., Meibom, S., et al		
Conferences,	Invited Oral Presentations		
WORKSHOPS, & SCHOOLS	ISSI Team Meeting: Coronal Nanoflares, Bern, CH Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, USA	2016 2014	
Schools	Oral/ePoster Presentations	2011	
	Solar Physics Division Meeting (SPD/AAS), Portland, OR, USA	2017	
	Coronal Loops Workshop VIII, Palermo, Sicily, IT	2017	
	Living with a Star (SDO/LWS) Workshop, Burlington, VT, USA	2016 2016	
	Hinode 10, Nagoya, JP National Astronomy Meeting 2016, Nottingham, UK	2016	
	Hinode 9, Belfast, UK	2015	
	Glasgow-Cambridge Flare Workshop, Glasgow, UK	2015	
	Poster Presentations	-01-	
	European Solar Physics Meeting (ESPM), Budapest, HU Solar Physics Division Meeting (SPD/AAS), Portland, OR, USA	2017 2017	
	Living with a Star (SDO/LWS) Workshop, Burlington, VT, USA	2017	
	Coronal Loops Workshop VII, Cambridge, UK	2015	
	NAM 2015, Llandudno, UK	2015	
	223rd AAS Meeting, National Harbor, MD, USA	2014	
	Schools Attended CESRA Radio Summer School 2015, Glasgow, UK	2015	
	STFC Advanced Summer School in Solar Physics, Dundee, UK	2013	
	Conferences/Workshops Attended		
	NuSTAR Heliophysics Workshop (remote participation), Berkeley, CA, USA	2017	
	SUPA Cormack Astronomy Meeting, Edinburgh, UK	2015	
	RAS Discussion Meeting: Results from IRIS, London, UK SUPA Cormack Astronomy Meeting, Edinburgh, UK	2015 2014	
	1st Space Glasgow Research Conference, Glasgow, UK	2014	
AWARDS AND GRANTS	University of Glasgow Solar Physics Division Meeting (SPD/AAS) Student Poster Award	2017	
TOTAL: £7000	Solar Physics Division Meeting (SPD/AAS) Studentship Award	2017	
	Coronal Loops Workshop VIII Travel Award	2017	
	National Astronomical Observatory of Japan Travel Award	2016	
	Hinode 9 Travel Award European Space Agency/Cambridge Philosophical Society Travel Award	2015 2015	
	University of Southampton		
	Research Scholarship	2013	
	Summer Studentship Grant	2013	

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TEACHING	Coursera Inc. "Data Scientists Toolbox" Community Mentor An invited mentor of a course in the Data Science specialization offered by Johns Hoversity.	17 – present opkins Uni-	
	Supervised students, and marked first-year astronomy problem sets.	2016 - 2017 2015 - 2016 ering topics 2015	
MEMBERSHIPS	International Space Science Institute (ISSI), Young Scientist Member 201 Member of Paola Testa's ISSI Team: New Diagnostics of Particle Acceleration in Sol. Nanoflares from Chromospheric Observations and Modeling	15 – present 15 – present 14 – present	
COMMUNITY INVOLVEMENT	Nature Communications, Reviewer Glasgow Astronomy & Astrophysics Group Meeting, Organiser CESRA Radio Summer School, Volunteer Organiser	17 – present 2017 2015	
SCIENTIFIC OUTREACH	BBC Stargazing Live, Demonstrator So'ton Astrodome, Demonstrator BBC Bang Goes The Theory Roadshow, Demonstrator	2016 2016 2016 2015 2013 – 2014 2013 2012 2012	
	 UK Solar Physics (UKSP) Nuggets, concise, easy-to-read science articles 84. The first NuSTAR microflare Hinode/XRT Picture of the Week (XPOW) The First Microflare Observations with Hinode/XRT & NuSTAR 	2017 2017	
Personal Projects	ColourBlind, A repository for colour-blind-friendly colour tables.	2017	
Professional Development	Coursera, Inc. (MOOC Platform) Using Coursera.org, a massive open online course (MOOC) platform, to take specializations related courses and a final capstone project) offered by accredited universities to further develounderstanding in a wide range of computer science topics.	ed by accredited universities to further develop skills and	
	Nine-course (plus capstone) introduction to data science. Mastering Software Development in R, Johns Hopkins University Four-course (plus capstone) specialization providing riguourous training in R.	17 – present 17 – present 17 – present sis on statis-	
TECHNICAL SKILLS:	Computing: Python, R, IDL, ETeX, git, GitHub, Linux/Unix, Mac OSX, Microsoft Wind Microsoft Office, Adobe Creative Cloud General: Data Analysis, Data Visualization, Interdisciplinary Collaboration, Public Speaking Teaching, Writing (Technical & Lay)		