Oliver James Hall

PhD student in asteroseismology

date of birth
16-05-1994

contact
School of Physics & Astronomy
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languages
English, Dutch (bilingual)

programming
Python (advanced)
Unix, LaTeX, Git (intermediate)
R (basic)

skills
PyStan
Bayesian statistics
Hierarchical models
Software development & publication (Python)

research interests

I am intersted in a Bayesian use of asteroseismology in population studies, and what it can tell us about stellar physics & analysis systematics.

education

2016 →2020 **PhD** in Physics & Astronomy — University of Birmingham, UK
Supervisor: Dr. Guy R. Davies
"Asteroseismology with Kepler, K2 and TESS"

2012 →2016 **M.Sci.** Physics & Astrophysics — University of Birmingham, UK
Disseration supervisor: Prof. William J. Chaplin
"Detecting Signatures of Stellar Activity Cycles in Solar-Type Stars Using Asteroseismic Analysis of P-Mode Amplitude Shifts"
1st Class w. Honours

2006 →2012 **Gymnasium** — Gemeentelijk Gymnasium Hilversum, Netherlands
9/10 in Maths, Physics and Chemistry
8.5/10 average across eleven subjects

teaching and research

2017 →now **2nd Year Laboratory Projects Demonstrator** — University of Birmingham, UK
Taught projects varying from spectroscopy to the building of a theremin. Helped students build apparatus, understand their results, and was responsible for marking their work and providing constructive feedback.

2016 →now **3rd Year Observatory Laboratory Supervisor** — University of Birmingham, UK
Helped supervise students in their research using the University of Birmingham Observatory. Helped the students understand their results, as wellas aiding them in the use of IRAF, Unix, LaTeX and Python.

2015 **Summer Undergraduate Reserach Experience (SURE)** — University of Leicester, UK
Was selected to perform a six-week project using Python to program a Universal-Robots UR5 rootic arm system to perform careful experimantal testing on a prototype focal plane for the Cherenkov Telescope Array under Dr. Jon Lapington. Disseminated results through a report and group presentation.

2015 **Ogden Trust Teach Physics Intern** — Bishop Challoner Catholic College, Birmingham, UK
Was selected as one of the Ogden Trust's Teach Physics interns. I helped teach pupils throughout lessons and prepared, taught a lesson & careers workshop of my own design, and was shortlisted for the 'Teach Physics Outstanding Intern 2015' award.

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grants & awards

2018	IOP Research Student Conference Fund - £300 *(declined)*	Institute of Physics, UK
2016	Royal Society Partnership Grant - £3000	The Royal Society, UK

presentations

2018 Dec.	**Birmingham-Warwick Science Meet-Up** *"Testing asteroseismology with Gaia DR2: Hierarchical Models & the Red Clump"*	University of Warwick, UK
2018 Jul.	**TASC4/KASC11** *"Testing asteroseismology with Gaia DR2: Luminosity of the Red Clump"*	Aarhus University, Denmark
2017 Jul.	**TASC3/KASC10 (poster presentation)** *"Mixture Models applied to* Kepler *backgrounds & development for TESS*	University of Birmingham, UK
2017 Apr.	**T'DA 2** *"Estimating TESS backgrounds with mixture models – Update"*	Aarhus University, Denmark
2016 Nov.	**T'DA 1** *"Estimating TESS backgrounds with mixture models"*	University of Birmingham, UK

conferences & research visits

2019 Jan.	T'DA 8	Aarhus University, Denmark
2018 Oct.	T'DA 5	Ohio State University, OH, USA
2018 Oct.	3 week research visit to the KeplerGO office	NASA Ames Research Centre, CA, USA
2018 Jul.	T'DA 4	Aarhus University, Denmark
2018 Jul.	TASC4/KASC11	Aarhus University, Denmark
2018 Jan.	1 week research visit to SAC	Aarhus University, Denmark
2017 Dec.	T'DA 3	KU Leuven, Belgium
2017 Jul.	TASC3/KASC10	University of Birmingham, UK
2017 Apr.	T'DA 2	Aarhus University, Denmark
2016 Nov.	Asteroseismology of stellar activity cycles	Observatoire de la Côte d'Azur, France
2016 Nov.	T'DA 1	University of Birmingham, UK

outreach & engagement

2019 →now ***Author*, Astrobites Collaboration**
Write and edit monthly summaries of astronomy papers for an undergraduate level for the website Astrobites.

2019 Jan. ***Featured Astonomer*, Astrotweeps**
Hosted the @astrotweeps Twitter account for a week, providing public-level explanations of asteroseismology and space-based photometry.

2018 →2019 ***LOC & SOC*, 9th BEAR PGR Conference** — University of Birmingham, UK
Organised local annual high performance computing conference.

2018 →now ***Demonstrator*, Applicant Visit Day** — University of Birmingham, UK
Helped develop learning material for- and taught- laboratory sessions on using *Kepler* data for visiting undergraduate course applicants.

2016 →2017 ***Partnered Researcher*, Royal Society Partnership Grant**
Developed and taught a series of lessons and lab activities engaging Year 9 pupils with exoplanet characterisation and asteroseismology.

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community services

2018 →now	Member of the `lightkurve` collaboration	
2017	LOC member for TASC3/KASC11	University of Birmingham, UK
2016 →now	Member of the *TESS Data for Asteroseismology* (T'DA) collaboration	
continuous	Publish eductional blogs and tutorials online	

publications

Huber, D, Chaplin, W. J., Chontos, A ... **Hall, O. J.** ... et al.
A Hot Saturn Orbiting An Oscillating Late Subgiant Discovered by TESS
arXiv e-prints, 2019
`arXiv:1901.01643`

Bugnet, L., García, R. A., Mathur, S., Davies, G. R., **Hall, O. J.**, Lund, M. N., Rendle, B. M.
FliPer$_{Class}$: In search of solar-like pulsators among TESS targets
arXiv e-prints, 2019
`arXiv:1902.09854`

Lightkurve Collaboration, Cardoso, J. V. d. M., Hedges, C. ... **Hall, O. J.** ... et al. [1 citation]
Lightkurve: Kepler and TESS time series analysis in Python
ASCL, 2018
`ascl:1812.013`

Bugnet, L., García, R. A., Davies, G. R. ... **Hall, O. J.** ... et al. [5 citations]
FliPer: A global measure of power density to estimate surface gravities of main-sequence solar-like stars and red giants
Astronomy & Astrophysics
`doi:0.1051/0004-6361/201833106, arXiv:1809.05105`

Khan, S., **Hall, O. J.**, Miglio, A. et al. [5 citations]
The Red-giant Branch Bump Revisited: Constraints on Envelope Overshooting in a Wide Range of Masses and Metallicities
The Astrophysical Journal, 2018
`doi:10.3847/1538-4357/aabf90, arXiv:1804.06669`

Davies, G. R., Lund, M. N. and Miglio, A. ... **Hall, O. J.** ... et al. [20 citations]
Using red clump stars to correct the Gaia *DR1 parallaxes*
Astronomy & Astrophysics
`doi:10.1051/0004-6361/201630066, arXiv:1701.02506`