

Simon Murphy
PhD student
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Education

- BSc Physics with Astrophysics, University of Manchester, UK, 2010. Average exam grade in final year of study: 86%.
- Presently studying under a PhD program (anticipated completion by 2013 September), “Investigating the A-type stars with *Kepler* data”. Thesis adviser: Prof. Don Kurtz.

Research Interests

The plethora of phenomena found in A-type stars, including chemical peculiarities, rotation and pulsation. In particular, the Am stars, delta Scuti stars, and the role that chemical peculiarity plays in pulsation characteristics in the delta Scuti instability strip. A short (300-word) research summary is collated separately at simonmurphy.info/research

Skills and Experience

Leading publications involving many authors is a task requiring good time- and people-management, but also requires over-arching knowledge of disciplines in the same field. In addition to the Fourier analysis in which expertise has been gained, understanding of the processes of spectroscopic analysis and stellar pulsation modelling has been gained. The Fourier analysis itself often requires software to be programmed (C and Ruby have been used), and increasingly detailed investigations necessitate the design of increasingly complicated figures (using IDL). I have been actively involved in organising the Kepler Asteroseismic Science Consortium (KASC) working group on delta Scuti stars, as well as taking on various teaching, marking and outreach duties. I also made a three-month visit to the University of Porto to work with the stellar modelling team there.

Publications and Reviewing

First author publications from last 12 months:

- [Frequency analysis of the high-amplitude SX Phe star KIC 11754974](#): Murphy et al. (2013), MNRAS (submitted)
- [Super-Nyquist asteroseismology with the Kepler Space Telescope](#), Murphy et al. (2012b), (MNRAS), arXiv:1212.5603
- [Kepler Fourier concepts: The performance of the Kepler data pipeline](#), Murphy (2012b), (AN), arXiv:1211.5141
- [Pulsational amplitude growth of KIC 3420637 \(HD 178875\) in the context of Am and rho Puppis stars](#), Murphy et al. (2012a), MNRAS 427, 1418
- [Characteristics of Kepler short- and long-cadence data](#), Murphy (2012a), MNRAS 422, 665

A full list of publications, invited and contributed talks is collected separately. Publications are available in pdf format at simonmurphy.info/research

Reviewing: Reviewer for ApJ.

Fundraising and Proposals

Full or partial funding was obtained for the following meetings:

- Three-month research visit at University of Porto (2012 Oct-Dec) externally funded for all costs except travel.

- 10th NEON Observing School (Asiago, Italy, 2012 September) externally funded for all costs except travel.
- KASC 5 (Balaton, Hungary, 2012 June) funded for GBP200 of travel costs.
- The Modern Era of Helio- and Asteroseismology (Obergurgl, Austria, 2012 May) externally funded for all costs except travel.
- Exoplanets and their host stars (University of Oxford, 2012 March), fully funded by the STFC.
- First Kepler Science Conference (NASA Ames, California, 2011 Dec) was externally funded for USD1500.

My PhD predominantly uses data from the Kepler Space Telescope. As such, very few proposals required writing for data. Telescope time for five half-nights on the 1.5-m Telescope of Loiano was successfully applied for, for a project I led.

Teaching

- Demonstrated astronomy lab for first year undergraduates at UCLan's Alston observatory, 2011-2012 academic year.
- Demonstrated C++ lab for second-year undergraduates.
- Edited course notes for second-year solar system physics course.
- Marked a variety of UCLan's distance-learning undergraduate-level modules.
- During undergraduate and early post-graduate career, delivered gym instructor and personal trainer courses to groups of 6-12 adults over two weekends, constituting 14-18 hours of teaching and assessment per weekend; acted as a support tutor for up to 20 adults over a 6-8 week period.

Outreach

Represented UCLan at:

- Astrofest, Feb 2012 (and 2013),
- Lancashire Science Festival, 2012, on behalf of Institute of Physics
- Part of UCLan's graduate outreach programme as a STEMNET ambassador.

Prizes and Awards

- Runner up prize in "Experienced Presenter" category for oral presentation at UCLan's graduate research conference, 2012.
- Winner of "Best Poster" category at UCLan's graduate research conference, 2011.
- Selina Bright scholarship (best exam results), University of Manchester 2010

Other

Citizenship: British citizen

Spoken languages: English mother-tongue; Advanced German

Computer languages: Ruby; C/C++; IDL

Driving: Full, clean UK driving licence

Societies: FRAS

References

Prof. Don Kurtz, Jeremiah Horrocks Institute, University of Central Lancashire, Preston PR1 2HE, UK. Email: kurtzdw@gmail.com

Prof. Hiromoto Shibahashi, Department of Astronomy, The University of Tokyo, Tokyo 113-0033, Japan. Email: h.shibahashi@gmail.com