

Shaun C Read

Ph.D. Student



shaun.science



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philastrophist

Technical Skills

Overview



Programming

Python

Shell • SQL • Matlab • \LaTeX

C • C++ • R • Ruby • IDL • html

Education

Ph.D., Astronomy

University of Hertfordshire, UK

2015 - Present

Expected completion: 2019

MPhys, Physics

Durham University, UK

2010 - 2014

2:1 with Honours

Affiliations

Fellow of the Royal Astronomical Society, *FRAS*

Summary

I am a PhD student of 3.5 years at the University of Hertfordshire specialising in Bayesian statistical analysis on big data. My main interests are reverberation mapping and the interface between star-forming galaxies and AGN. I have worked with a diverse range of data including the latest releases from the LOFAR, SDSS, and H-ATLAS surveys and the Horizon-AGN simulations. My latest work combines the use of novel statistical Bayesian analysis with these large datasets in order to facilitate effective exploitation of the next generation of surveys.

Experience

- | | | |
|---------------------|--|--------------------------------------|
| Oct 2015 - Present | Ph.D. student | University of Hertfordshire |
| | Supervisor: Dr Daniel J.B. Smith | |
| | Thesis: Measuring the Physical Properties of Distant Galaxies and Black Holes in the Era of Surveys | |
| | <ul style="list-style-type: none">• Studying the relation between the star-formation rate and radio luminosity of galaxies.• Using new photometric time-series techniques to estimate quasar black-hole masses using reverberation mapping.• Innovating new Bayesian methods to infer complete distributions from incomplete, noisy data in order to mitigate observational bias and explore large datasets. | |
| Jun 2016 - | Observing | William Herschel Telescope, La Palma |
| Jan 2016 - Present | Programming teaching assistant & tutor | University of Hertfordshire, UK |
| | <ul style="list-style-type: none">• Taught students Python and Matlab for scientific programming courses.• Assisted students with programming exercises.• Lead programming lectures and demonstrations. | |
| Nov 2016 - Mar 2017 | 'Physics of stars' demonstrator | University of Hertfordshire, UK |
| | <ul style="list-style-type: none">• Assisted students at the Bayfordbury teaching observatory.• Instructed in the use of 16-inch telescopes and the reduction of data.• Projects included PNe imaging and constructing open cluster HR-diagrams. | |
| Jul 2014 - Jul 2015 | Insight Analyst | Linkdex, UK |
| | Processing big data from raw consumer search patterns to an explanatory format suitable for client business strategies. | |
| | <ul style="list-style-type: none">• Big data processing with Python & sci-kit learn• Communication with the backend team• API design, visualisation, and automation development. | |
| Jun 2013 - Aug 2013 | Summer Student | National Physical Laboratory, UK |
| | Supervisor: Dr Alastair Sinclair | |
| | <ul style="list-style-type: none">• Worked with the Time & Frequency Team.• Analysed Gaussian beam quality for the strontium ion optical clock group.• Developed analytical Matlab code and the optical bench setup required. | |

Research Interests

- **Star-formation:** LOFAR, FIR, empirical relations, FIRC, MagPhys, SFG-AGN interface.
- **Reverberation mapping:** High redshift, photometric techniques, $t_{lag} - L_{5100}$, selection biases.
- **Big data & Bayesian analysis:** Large surveys, advanced Bayesian statistical inference, bias mitigation.

Publications

Published

- *The Far-Infrared Radio Correlation at low radio frequency with LOFAR/H-ATLAS*, **Read, S. C.**; Smith, D. J. B.; Gürkan, G.; Hardcastle, M. J.; Williams, W. L.; Best, P. N.; Brinks, E.; Calistro-Rivera, G.; Chyży, K. T.; Duncan, K.; Dunne, L.; Jarvis, M. J.; Morabito, L. K.; Prandoni, I.; Röttgering, H. J. A.; Sabater, J.; Viaene, S. – 2018MNRAS.480.5625R
- *LOFAR/H-ATLAS: a deep low-frequency survey of the Herschel-ATLAS North Galactic Pole field*, Hardcastle, M. J.; Gürkan, G.; van Weeren, R. J.; Williams, W. L.; Best, P. N.; de Gasperin, F.; Rafferty, D. A.; **Read, S. C.**; Sabater, J.; Shimwell, T. W.; Smith, D. J. B.; Tasse, C.; Bourne, N.; Brienza, M.; Brüggen, M.; Brunetti, G.; Chyży, K. T.; Conway, J.; Dunne, L.; Eales, S. A.; Maddox, S. J.; Jarvis, M. J.; Mahony, E. K.; Morganti, R.; Prandoni, I.; Röttgering, H. J. A.; Valiante, E.; White, G. J. – 2016MNRAS.462.1910H

Submitted and in preparation

- *Highly Efficient Photometric Reverberation Mapping at High Redshift*, **Read, S.C.**; Smith, D. J. B.; Jarvis, M. J.; Gürkan, G. – submitted to MNRAS
- *On the Causes of the Mass Dependency of the Star-formation Rate – Radio Luminosity Relation with LOFAR, Horizon-AGN, and CANDID*, **Read, S.C.**; Smith, D. J. B.; Gürkan, G.; Hardcastle, M. J.; et al. – in prep.
- *A LOFAR-IRAS cross-match study: the far-infrared radio correlation and the 150 MHz luminosity as a star-formation rate tracer*, Wang, L.; Rowan-Robinson, M.; Gao, F.; Bonato, M.; Calistro-Rivera, G.; Chyży, K.T.; Duncan, K.J.; Farrah, D.; Gurkan, G.; Hardcastle, M.J.; McCheyne, I.; Prandoni, I.; **Read, S.C.**; Röttgering, H.J.A.; Sabater, J.; Shimwell, T. W.; Smith, D.J.B.; Williams, W.L. – in prep.
- *Galaxy Morphological Classification in Deep-Wide Surveys via Unsupervised Machine Learning*, Martin, G.; Kaviraj, S.; Hocking, A.; **Read, S.C.**; Geach, J. – in prep.
- *Bias and Accretion Rate Dependency in the Reverberation-Mapped Lag-luminosity Relation*, **Read, S.C.**; Smith, D. J. B.; et al. – in prep.
- *Brown dwarfs with Gaia*, Gonzalez, E.; Pinfield, D.; **Read, S.C.**; et al. – in prep.

Presentations

April 2018	European Week of Astronomy and Space Science University of Liverpool, UK poster	European Astronomical Society, <i>EAS</i>
July 2017	National Astronomy Meeting University of Hull, UK contributed talk	Royal Astronomical Society, <i>RAS</i>
June 2016	National Astronomy Meeting University of Nottingham, UK contributed talk, poster	Royal Astronomical Society, <i>RAS</i>
May 2016	The Cosmic FIR Landscape with H-ATLAS University of Lisbon, Portugal contributed talk	H-ATLAS consortium