Shaun C Read

Ph.D. Student

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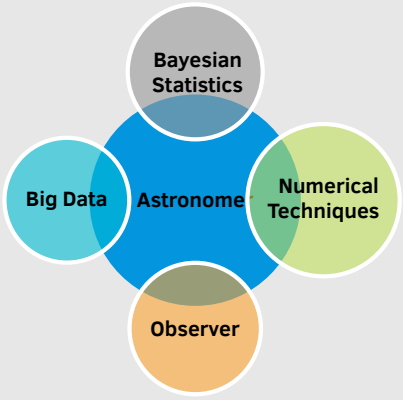
Technical Skills

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 exploition 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

- 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

- 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

- 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 explanative format suitable for client business strategies.

- 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

- 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, *EAS*
July 2017	**National Astronomy Meeting** University of Hull, UK contributed talk	Royal Astronomical Society, *RAS*
June 2016	**National Astronomy Meeting** University of Nottingham, UK contributed talk, poster	Royal Astronomical Society, *RAS*
May 2016	**The Cosmic FIR Landscape with H-ATLAS** University of Lisbon, Portugal contributed talk	H-ATLAS consortium