

Education

2016 – 2020 PhD in Astrophysics **University College London, UK**

Thesis Topic – A Radio Census of the Young Massive Cluster Westerlund 1.

Supervisor: Prof. Raman Prinja

- Reduced and analysed astronomical observations. Datasets included radio observations from ATCA (Australia Telescope Compact Array).
- Data provided information on physical features of stellar winds from a range of spectral types of stars, including source sizes and fluxes, which then led to constraints for mass-loss rates and spectral indices of many of the cluster members.
- Use of multiple data reduction software packages, including CASA, MIRIAD, and AIPS, and programming languages, Python and Java.

2012- 2016 MPhys, Physics with Astrophysics (1st Class) **University of Manchester, UK**

Final Year Project: Considering the impact of RFI on LOFAR stations when searching for Lunar-AQN interactions.

Supervisors: Dr Justin Bray, Prof. Anna Scaife

- Final year research project was an investigation into a hypothetical particle known as an AQN (Anti-Quark Nuggets), a possible dark matter candidate, using radio LOFAR data.
- Practical experiments undertaken through the degree often required quick proficiency with new software. Gained significant experience in data analysis and reduction, as well as presentation of results.

2005-2012 Beaumont Secondary School, St Albans

- 3 A-levels: Maths (A*), Physics (A*), Further Maths (A)
- 12 GCSEs (6A*, 5A, 1B) including Maths (A*) and English Language (A*).

Research Experience

June – Sept 2015 CERN – Summer Research Assistant **CERN (Geneva, Switzerland)**

Worked in the FATRAS (Fast Atlas Tracking Simulation) group, an ATLAS subgroup.

Developed a new macro in Root that enabled improved data compression for the detector material properties. Developed a correction for parameter faults in the simulation geometry of ATLAS, which can also function as a scaling tool to explore hypothetical scenarios.

Teaching Experience

2017 – 2019 Course Demonstrator **University College London (London, UK)**

Worked as a course demonstrator for 1st year computing and astronomy courses in both the academic years 2017/2018 and 2018/2019.

PHAS0007 Practical Physics and Computing 1:

- Worked in a team of 4 demonstrators dealing with a group of 60 students, teaching basic proficiency in coding with the use of the programming language Python. Responsible for assessing the in-class completed work at the end of each session, providing clear and concise feedback in both a written and verbal format.
- Demonstrator for the astronomy section of the course at the University College London Observatory, helping familiarise students with the use of Linux and basic astronomical concepts such as folded light curves and magnitudes.

PHAS0003: Practical Astronomy:

- Demonstrator for a first year astronomy course held at the University College London Observatory (UCLO). Responsible for general in-class queries whilst students completed computer exercises using both spectra and photometric data. Taught and assessed students on the safe and proper use of an optical refractor telescope.

Publications

- 2019** *A radio census of Westerlund 1*,
Andrews, H., Fenech, D., Prinja R.K., Clark, J.S., and Hindson, L., A&A 632, A38
- 2018** *Asymmetric ejecta of cool supergiants and hypergiants in the massive cluster Westerlund 1*,
Andrews, H., Fenech, D., Prinja R.K., Clark, J.S., and Hindson, L., MNRAS, 477, L55
- 2018** *An ALMA 3mm continuum census of Westerlund 1*.
Fenech, D.M., Clark J.S., Prinja, R.K., Dougherty, S., Najarro F., Negueruela I., Richards A., Ritchie B.W., and Andrews H., A&A, 617 (2018) A137

Conferences and Seminars

- June 2019** **EWASS (Lyon, France)**
Talk: A Radio Census Survey of Westerlund 1
Talk: The YHG's and RSG's of Westerlund 1
- November 2017** **Radio Stars: From kHz to THz (Haystack Observatory, Massachusetts, US)**
Poster.
- July 2017** **NAM (Hull, UK)**
Talk: Extended Radio Emission of Cool Hypergiants in Westerlund 1.
- June 2015** **CAPS (Manchester, UK)**
Member of the organisation committee for a national student physics conference.

International Schools Attended

- May 2018** **16th Synthesis Imaging Workshop (Socorro, US)**

Outreach

- 2018 – 2019** **ORBYTS Tutor (Hertfordshire, UK)**
Provided fortnightly outreach sessions at a school in Watford to a group of 17 year old students to teach them about scientific research on exoplanets.
- 2017** **School Tour Organiser (UCLO, London, UK)**
In charge of organizing and leading school tours in 2017 at the University College London observatory to a range of school-age audiences.

References

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