

CONOR NALLY

University of Edinburgh Astrophysics First Year PhD Student

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PROJECTS

Galactic Archaeology with Asymptotic Giant Branch Stars (PhD Project) 📅 2021-Current

- Using spatially resolved stellar population data from JWST and Euclid to discover star formation histories and dust production of a selection in local universe galaxies: NGC6822, 1Zw18, NGC346, N79

The Structure and Stellar Content of the Outer Disc of Messier33 (MPhys Project) 📅 2019-2020

- Masters thesis (20 weeks) focused on the warped morphology of the outer disc of M33. This primarily involved profiling the radial stellar distribution of different aged stars from the resolved *Pan Andromeda Archaeological Survey* data catalogue.
- There are plans for this study to be continued and published with my project supervisor Prof. Annette Ferguson.

Protostellar Jets in the Carina Nebula 📅 2019

- This project involved analysis of spectral data cubes to locate polar outflows from protostars embedded within the column structures present inside the Carina nebula.

Perseus Twin Open Star Clusters 📅 2018-2019

- Observations and photometric analysis of stellar content within clusters, determining various properties; distance, age, radial distribution, velocities, IMF and ILF.
- Project undertaken as part of a group in fourth year of university.
- All data was self gathered using the IFA 20" optical telescope.

Mapping Dust, Mass, SFR, Metallicity in Galaxies 📅 2018-2019

- Senior Honours project (10 weeks).
- Establishing parameter correlations in spatially resolved low redshift galaxies from the SAMI survey.

Infrared Variable Stars in Messier32 📅 2018

- Searching for AGB stars in the compact elliptical galaxy M32, using pointspread-function photometry with DAOPhot2 and Astropy.
- I am second author on the resulting paper in Monthly Notices of the Royal Astronomical Society: <https://arxiv.org/abs/2103.15857>

Software Based Projects

- Astronomical data reduction and catalogue manipulation package with Astropy and Photutils.
- libcfitsio based fits image alignment and viewer utilities.
- Design and simulated subatomic particle detector using Geant4.
- Smoothed particle hydrodynamical simulations.
- Connecting ~200 computers' sockets to form pseudo-super computer.
- Weather type predictions using Machine learning
- Fourier transform based image correction.

REFERENCES

- Prof. Annette Ferguson
- University of Edinburgh, Institute for Astronomy
- @ ferguson@roe.ac.uk
- Dr. Olivia Jones
- Science and Technology Facility Council
- @ olivia.jones@stfc.ac.uk

EDUCATION

Astronomy PhD (Full-time)

University of Edinburgh

📅 2021-2025 📍 Edinburgh

- Research PhD, fully funded by Science and Technology Facilities Council (STFC).
- Supervised by Prof. Annette Ferguson and Dr Olivia Jones.

Astrophysics MPhys

University of Edinburgh

📅 2020 📍 Edinburgh

- First Class Integrated Masters.

EXPERIENCE

Carnegie Vacation Scholarship

Carnegie Trust

📅 2019

- I applied for and received a research grant from the Carnegie Trust. As part of this grant I attended a speaking event with fellow award recipients and the funding body officials - during which I won the award for best presentation.
- This helped me develop my communicative abilities and provided experience in applying for funding.

Research Internship - UKATC

Project Science Group

📅 2019 📍 Royal Observatory, Edinburgh

- This summer project funded by the aforementioned Carnegie Trust grant.
- Astronomical data analysis under supervision of: Dr. Pamela Klaassen and Dr. Megan Reiter.

Research Internship - UKATC

Project Science Group

📅 2018 📍 Royal Observatory, Edinburgh

- This summer project was funded by the physics department after winning a school-wide competition.
- Astronomical data analysis under supervision of: Dr. Olivia Jones.