Payton E. **Rodman**

Institute of Astronomy, University of Cambridge, Madingley Rd, Cambridge CB3 0HA
✉ p.e.rodman@ast.cam.ac.uk www.paytonelyce.com

Summary of Research Interests

My current research, supervised by Professor Christopher Reynolds, focuses on the production of strong magnetic fields via dynamo action within accretion discs around supermassive black holes, such as those found in the centres of massive galaxies. My thesis aims to investigate different field configurations and their evolution using the magnetohydrodynamical (MHD) code Athena++.

Education

Doctor of Philosophy Astronomy — Expected 2023
University of Cambridge, Cambridge UK

- Gates Cambridge scholar
- Supervisor: Professor Christopher Reynolds

Bachelor of Science (Hons) Physics — 2018
University of Tasmania, Hobart AUS

- Awarded first class Honours with University Medal
- Thesis: Probing Intracluster Gas with Faraday Rotation from Black Hole Jets
- Supervisors: Dr Stanislav Shabala, Dr Ross Turner

Bachelor of Science Physics and Applied Mathematics — 2017
University of Tasmania, Hobart AUS

- GPA: 7.0/7.0

Refereed Publications

1. *Radio Galaxy Zoo: observational evidence for environment as the cause of radio source asymmetry*

   Rodman, P. E., Turner, R. J., Shabala, S. S., Banfield, J. K., Wong, O.-I., Andernach, H., Garon, A. F., Kapińska, A. D., Norris, R. P., Rudnick, L. (2019), *MNRAS, 482(4):5625-5641*

Research Experience

Undergraduate Vacation Scholar — Nov 2016 — Feb 2017
CSIRO Astronomy and Space Science, Perth AUS

- Supervisor: Dr Cormac Reynolds

  Used large-scale, multi-epoch surveys to study variability in radio sources caused by inhomogeneities in the interstellar and intergalactic medium.

Summer Research Student — Nov 2015 — Feb 2016
University of Tasmania, Hobart, AUS

- Supervisors: Dr Stanislav Shabala, Dr Ross Turner

  Used data from the citizen science project *Radio Galaxy Zoo* to study whether nearby galaxy clustering affects the physical properties of AGN jets, with focus on classical double radio galaxies.

Awards, Prizes, and Scholarships

- University Medal (UTAS) 2019
- Cambridge Australia Scholarship (Cambridge; *Honorary*) 2019
- Gates Cambridge Scholarship (Bill and Melinda Gates Foundation) 2019
- Dean's Honour Roll (UTAS) 2018, 2017
- Ken McCracken Prize (UTAS) 2018
- Vice-Chancellor's Leadership Award (UTAS) 2018
- Don Gaffney Scholarship (UTAS) 2018
- AIP Summer Meeting Travel Scholarship (AIP) 2017
- Australian Institute of Physics Prize (AIP) 2017
- TEMCO Community Foundation Scholarship in Science (UTAS) 2017
- Sir Phillip Fysh Prize (UTAS) 2016
- CSIRO Undergraduate Vacation Scholarship (CSIRO) 2016
- Dean's Summer Research Scholarship (UTAS) 2015
- John Fox Memorial Prize (UTAS) 2015
- F.M. Young Memorial Prize (UTAS) 2015
- Dr. Peter Smith Scholarship in the Physical Sciences (UTAS) 2015

Department Talks

- **Cambridge Institute of Astronomy**, Wednesday Seminar talk 2021
  Title TBD
- **Cambridge Institute of Astronomy**, X-ray BunClub Jan 2020
  Environment as a cause of radio source asymmetry
- **UTAS School of Natural Sciences** Sep 2019
  AGN accretion disks and X-ray variability
- **UTAS School of Natural Sciences** Oct 2018
  Probing Intra-Cluster Gas with Faraday Rotation from Black Hole Jets
- **CSIRO Astronomy & Space Science**, 15 Minutes of Fame Feb 2017
  The Spectral Signature of Interstellar Scintillation
- **UTAS School of Natural Sciences** Feb 2016
  Is environment the cause of radio jet asymmetry in Active Galactic Nuclei?

Teaching Experience

- **Supervisor (recitation sections of 3 students), Part II Astrophysical Fluid Dynamics** Lent 2020
  University of Cambridge
- **Marker, Statistical Physics and Solid State Physics** Sem 2 2019
  University of Tasmania
- **Marker, Physics 1A** Sem 1 2018, 2019
  University of Tasmania
- **Marker, Physics 1B** Sem 2 2018
  University of Tasmania
- **Peer tutor, Physics 1A** Sem 1 2017
  University of Tasmania

Technical Skills

- Programming/scripting languages: C++, Python, MATLAB, LaTeX
- Simulation suites: Athena++, PLUTO

Public Outreach

- Tastrofest (1hr), invited public lectures on black holes 2017–2019
- University of Tasmania Open Days and Cub Scout Visits, regular volunteer 2016–2019
- Tasmanian Youth Science Forum Panellist 2019
- UTAS Science & Engineering Investigation Awards Head Judge 2018
- BeakerStreet@TMAG Roving Scientist 2018
- Festival of Bright Ideas Presenter 2018
- Young Tassie Scientist 2018