

Patrick Yates-Jones

Tasmania, Australia
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EDUCATION

Doctor of Philosophy (Physics and Astronomy) – in progress 2017 – 2020
University of Tasmania Australia

Thesis: Dynamics and feedback from relativistic AGN jets in non-idealised environments

Supervisors: Dr. Stanislav Shabala and A/Prof Martin Krause

Bachelor of Science with Honours (Astrophysics) 2016
University of Tasmania Australia

Thesis: Numerical simulations of restarting radio jets from active galactic nuclei

Supervisors: Dr. Stanislav Shabala and A/Prof Martin Krause

Bachelor of Science (Mathematics and Physics) 2013 – 2015
University of Tasmania Australia

Diploma of Modern Languages (French) 2012 – 2015
University of New England Australia

RESEARCH EXPERIENCE

Member of AGN theory group 2016 – Present
University of Tasmania

As a member of this theory group I have:

- Developed and explored astrophysical jet theory in collaboration with my colleagues,
 - Developed a world-class numerical simulation setup that enables my colleagues to carry out their simulations,
 - Assisted my colleagues in the setup and execution of numerical simulations on distributed computing clusters,
 - Created libraries and supporting documentation for theoretical analysis.
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TEACHING EXPERIENCE

Lecturer:

KYA320 Computational Physics 2020
KIT212 Games Physics 2018

Lab demonstrator:

KYA320 Computational Physics 2018-2020
KYA212 Electromagnetism and Thermodynamics 2017

Tutor:

KME272 Engineering Mathematics 2B 2019
KMA154 Calculus and Applications 1A 2019
KMA252 Calculus and Applications 2 2019
KMA152 Calculus and Applications 1A 2017

Marker:

KYA211 Waves and Kinetic Theory 2018
KYA101 Physics 1A 2016

SUPERVISION EXPERIENCE

Honours:

William Hinds – *Numerical simulations of X and Z shaped radio galaxies* 2019

Summer research:

Larissa Jerrim – *The effect of non-ideal conditions on radio jet observable properties* 2019

PUBLICATIONS

- [1] P. M. Yates, S. S. Shabala, and M. G. H. Krause. “Observability of intermittent radio sources in galaxy groups and clusters”. In: *MNRAS* 480.4 (Aug. 2018), pp. 5286–5306. DOI: 10.1093/mnras/sty2191.
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CONFERENCE PRESENTATIONS

- P. Yates, S. Shabala, M. Krause, *The interaction between radio jets and their host environments* 2020
ASA Annual Scientific Meeting, Virtual [talk]
- P. Yates, S. Shabala, M. Krause, *Asymmetric radio jets* 2019
ASA Annual Scientific Meeting, Brisbane [talk]
- P. Yates, S. Shabala, M. Krause, *Observability of intermittent radio sources* 2018
XXX IAU General Assembly, Vienna [poster]
- P. Yates, M. Krause, S. Shabala, *Pressure collimation of jets in galaxy groups and clusters* 2017
ASA Annual Scientific Meeting, Canberra [poster]
- P. Yates, S. Shabala, M. Krause, *Hydrodynamical simulations of feedback from AGN* 2017
SWG3 WALLABY workshop, Melbourne [talk]
- P. Yates, S. Shabala, M. Krause, *Numerical simulations of radio jets from active galactic nuclei* 2017
11th ANITA theory workshop, Tasmania [talk]
- P. Yates, M. Krause, S. Shabala, *The feedback efficiency of restarting jets from Active Galactic Nuclei* 2016
CAASTRO Changing Face of Galaxies, Tasmania [poster]
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COLLOQUIA AND SEMINARS

- RL-AGN UK group meeting, University of Oxford October 2018
Centre for Astrophysics Research, University of Hertfordshire October 2018
University of Tasmania July 2018
University of Tasmania March 2018
University of Tasmania May 2017
University of Tasmania February 2017
University of Tasmania October 2016
University of Tasmania May 2016
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GRANTS

Computing:

- Towards More Realistic Modeling Of Supermassive Black Hole Jets In Galaxy Formation 2020
Simulations *Co-I* [45 MSU, NCI Gadi]
- Radio jets in asymmetric environments *PI* [300 KSU, NCI Raijin] Q3-Q4 2019
- Radio jets in asymmetric environments *PI* [200 KSU, NCI Raijin] Q1-Q2 2019

Observing:

- Probing the outburst history and precessing jet in Hydra A *Co-I* [312 ks exposure, XMM-Newton] 2018
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AWARDS

- Dean’s Summer Research Scholarship – UTAS 2016
Dean’s Honour Roll – UTAS 2015, 2016
Dr. Peter Smith Scholarship in Physical Sciences – UTAS 2014 – 2015
Dean’s Roll of Excellence – UTAS 2013, 2014
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TECHNICAL SKILLS

Programming Languages: Bash, C, C#, CSS, HTML, Javascript, \LaTeX , MATLAB, Python

Numerical Simulation Tools: PLUTO, GADGET

General IT Skills: running massively-parallel code on HPC facilities, web design, server management and systems administration, operating systems (Linux, macOS, Windows)

OUTREACH

Presentation, Royal Society of Tasmania Post Graduate Night 2019
Presentation, Astronomical Society of Tasmania 2018
Tour guide, Mt Pleasant Radio Observatory 2017-2019
Event volunteer, University of Tasmania open day 2016-2017,2019
School demonstrations:
 Rocket propulsion, Lindisfarne North Primary School 2019
 Light and electricity, Collegiate Middle School 2018, 2019
Exhibitor, Milking the Future Career Expo, Burnie 2019
Exhibitor, Creating My Career events in Burnie, Launceston, and Hobart 2019

VOLUNTEERING

Youth Group Leader 2010 - Present
St Mark's Anglican Church *Tasmania*
Summer Camp Leader 2013 - Present
Anglican Camping Tasmania *Tasmania*
Worship Band Member 2012 - 2018
St Mark's Anglican Church *Tasmania*