**Ryan T. Urquhart**
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## Education

**Curtin University**, Perth, WA

Ph.D., Astronomy, *Expected:* July 2018

- Thesis: *Exploring Regimes of Super-Eddington Accretion in Black Hole Binaries*
- Advisors: Prof Roberto Soria, A/Prof James Miller-Jones, Dr Gemma Anderson, Dr Richard Plotkin and Dr Peter Curran,

Bachelor of Science (Honours), Physics, Dec 2014

- Thesis: *An Evaluation of the Potential of the Murchison Widefield Array for the Search for Extraterrestrial Intelligence*
- Advisor: Prof Steven Tingay
- *First Class Honours*

Bachelor of Science (Physics), Physics and Astronomy, Dec 2013

- Undergraduate Research Project: *Kinematics of the precessing jets in the Galactic X-ray binary system SS 433.*
- Advisor: A/Prof James Miller-Jones
- *2013 Curtin Institute of Radio Astronomy Undergraduate Astronomy Prize*

## Research Achievements

I have **3 first-author refereed publications** with a fourth to be submitted within two weeks.

- 3 refereed first-author publications
- 9 refereed publications
- 60 total citations
- h-index = 4

## Research Interests

- Super-Eddington accretion onto stellar-mass black holes and neutron stars
- X-ray spectral and timing analyses of X-ray binaries
- Optical/radio properties of ionised nebulae from ultra-powerful outflows of compact objects

## Awards

I was a **finalist** for the **state-wide** science awards presented by the Western Australian Government for the best science PhD student. I have also won **5 prizes** for talks I've given at **national conferences**.

Student Awards

- Finalist Western Australia Premier's Science Award - ExxonMobil Student Scientist of the Year — Aug 2017
- Curtin Institute of Radio Astronomy Undergraduate Astronomy Prize — Nov 2013

Talk Awards

- ICRAR Student Day: Best Feature Presentation — Dec 2017
- Australian Institute of Physics WA Postgraduate Student Conference: Runner-Up Best Presentation — Nov 2017
- Australian Institute of Physics WA Postgraduate Student Conference: Runner-Up Best Presentation — Oct 2016

- Australian Institute of Physics WA Postgraduate Student Conference: Peoples Choice Award — Oct 2016
- Astronomical Society of Australia Helena Award: Winner — Jul 2016
- Royal Society of Western Australia Postgraduate Symposium, Best Presentation — Oct 2015

Scholarship Awards

- Australian Postgraduate Award, Curtin University — Jan 2016
- Department of Applied Physics Scholarship, Curtin University — Jan 2015

## Presentations

I have given **4 seminars**, **1** talk at an **international conference**, and **8 talks** at Australian **national conferences**, along with numerous internal presentations.

Seminars

- Monash University - *Jets from super-Eddington sources* — Feb 2018
- University of Michigan - *Eclipsing ULXs and bubbles in M51* — Aug 2017
- University of Iowa - *Eclipsing ULXs and bubbles in M51* — Aug 2017
- MIT - *Eclipsing ULXs and bubbles in M51* — Aug 2017

Conference Talks

- Australian Institute of Physics Postgraduate Symposium - *Measuring the mechanical power of black holes* — Noc 2017
- Astronomical Society of Australia Annual Meeting - *Ionised nebulae around super-Eddington X-ray sources* — Jul 2017
- ICRAR Student Day - *ULX bubbles* — Dec 2016
- Bolton-Student Symposium - *Eclipsing ULXs* — Nov 2016
- The First Pietro Baracchi Conference - *ULXs in the SKA era* — Oct 2016
- Australian Institute of Physics Postgraduate Symposium - *Eclipsing ULXs* — Oct 2016
- Astronomical Society of Australia Annual Meeting - *Discovery of the first eclipsing ULXs* — Jul 2016
- ULXs and their Environments - *Discovery of the first eclipsing ULXs* — Jun 2016
- ICRAR Student Day - *Ultraluminous X-ray sources* — Nov 2015
- Royal Society of Western Australia Postgraduate Symposium - *Exploring the fastest feeding black holes in the Universe* — Oct 2015
- Astronomical Society of Australia Annual Meeting - *A systematic survey of ultraluminous supersoft sources* — Jul 2015

## Teaching Experience

I have teaching experience **running laboratory sessions** for 1st-year physics students and **mentoring/co-supervising** 2 undergraduate astronomy students.

Laboratory Demonstrator — 2016-2017
Foundations of Physics 1006
Curtin University

Co-Supervisor — Summer 2016/17
Undergraduate Summer Research Student
International Centre for Radio Astronomy Research
Curtin University

Assisted Supervision — 2017
3rd Year Undergraduate Research Student
Curtin University

## Service

I devote significant time to **outreach**, volunteering for numerous **public events**, organising **work experience** visit from school students and giving **public talks**. I am also part of **internal organisations**, such as the **ICRAR-Curtin Development Committee**, a group tasked with fostering **diversity and equity** in the workplace.

Outreach

- Coordinating year 10 work experience students' visits to the Curtin Institute of Radio Astronomy (total of 26 students) — 2015-current
- Invited to speak at the Indigenous Australian Engineering Summer School – Meet a Researcher event (∼50 students) — Jan 2017
- Multiple primary school observing nights (50-100 students) — 2015–2017
- Multiple primary school astronomy presentations (20-50 students) — 2015-2017
- Multiple public Solar System presentations (∼20 students) — 2015-2016
- Perth Science Festival ICRAR stall volunteer (∼5,000 attendees) — Aug 2016
- Astrofest Hardcore Science Zone organiser (∼3,000 attendees) — Mar 2018
- Astrofest Telescope organiser (∼3,000 attendees) — Mar 2017
- Astrofest general volunteer (∼3,000 attendees) — Mar 2015 & 2016
- Curtin Open Day volunteer (∼10,000 attendees) — Jul 2015, 16 & 17

Committees

- ICRAR-Curtin Development Committee Student Representative — 2015 – 2017
- ICRAR Student Day Local Organising Committee (50 attendees) — 2017
- ICRAR-Con Local Organising Committee (200 attendees) — 2016 & 2017

## Awarded Telescope Time

Principal Investigator

- Australia Telescope Compact Array (48 hours) Urquhart et al. — 2016

Co-investigator

- XMM Newton Large Proposal (1 Ms) Pinto et al. — 2017
- Large Binocular Telescope (900 s) Schwope et al. — 2016
- Australia Telescope Compact Array (36 hours) Soria et al. — 2015

## Refereed Journal Publications

1. **R. Urquhart** and R. Soria. 2016. "Optically thick outflows in ultraluminous supersoft sources", *MNRAS*, 456(2), p. 1859-1880. DOI:10.1093/mnras/stv2293 Citations: 27

2. C. Pinto, W. Alston, R. Soria, M. J. Middleton, D. J. Walton, A. D. Sutton, A. C. Fabian, H. Earnshaw, **R. Urquhart**, E. Kara and T. P. Roberts. 2017. "From ultraluminous X-ray sources to ultraluminous supersoft sources: NGC 55 ULX, the missing link", *MNRAS*, 468(3), pp. 2865-2883. DOI:10.1093/mnras/stx641 Citations: 16

3. **R. Urquhart** and R. Soria. 2016. "Two eclipsing ultraluminous X-ray sources in M51", *ApJ*, 831(1), article id. 56, 23 pp. DOI:10.3847/0004-637X/831/1/56 Citations: 7

4. S. J. Tingay, C. Tremblay, A. Walsh and **R. Urquhart**. 2016. "An opportunistic search for extraterrestrial intelligence (SETI) with the Murchison Widefield Array", *ApJL*, 827(2), article id. L22, 5 pp. DOI:10.3847/0004-637X/831/1/56 Citations: 4

5. V.A. Moss, J.R. Allison, E.M. Sadler, **R. Urquhart**, et al. 2017 "Connecting X-ray absorption and 21 cm neutral hydrogen absorption in obscured radio AGN", *MNRAS*, 471(3), p. 2952-2973. DOI: 10.1093/mnras/stx1679 Citations: 3

6. R. Soria, A. Musaeva, K. Wu, L. Zampieri, S. Federle, **R. Urquhart**, E. van der Helm and S. Farrell. 2017. "Outbursts of the intermediate-mass black hole HLX-1: a wind instability scenario", *MNRAS*, 469(1), p. 886-905. DOI: 10.1093/mnras/stx888 Citations: 2

7. H. Rampadarth, R. Soria, **R. Urquhart**, M.K. Argo, M. Brightman, C.K. Lacey, E.M. Schlegel, R.J. Beswick, R. Baldi, T.W.B. Muxlow, I.M. McHardy, D.R.A. Wiliams and G. Dumas. 2018. "Jets, Arcs and Shocks: NGC 5195 at radio wavelengths", *MNRAS*, 476(3), p. 2876-2889. DOI: 10.1093/mnras/sty390 Citations: 1

8. **R. Urquhart**, R. Soria, H. Johnston, M. Pakull, C. Motch, A. Schwope, J.C.A. Miller-Jones and G.E. Anderson. 2018. "Multiband counterparts of two eclipsing ultraluminous X-ray sources in M 51". *MNRAS*, 475(3), p. 3561-3576. DOI: 10.1093/mnras/sty014

9. S. Wang, R. Soria, **R. Urquhart** and J. Liu. 2018. "Discovery of two eclipsing sources in M 51", *MNRAS*, DOI: 10.1093/mnras/sty872