

# Dr. Rebecca Louise Davies

*ARC DECRA Fellow and Senior Lecturer, Swinburne University of Technology*

rdavies@swin.edu.au | <https://rebeccalouise.net> | ORCID: 0000-0002-3324-4824

---

|                                |   |                                       |
|--------------------------------|---|---------------------------------------|
| POSITIONS                      | <b>Swinburne University of Technology</b>   |                                       |
|                                | Senior Lecturer (ongoing, Level C)  | <i>2024 – present</i>                 |
|                                | ARC DECRA Fellow (Level B/C)  | <i>2024 – 2027</i>                    |
|                                | Postdoctoral Researcher (Level A/B)   | <i>2020 – 2023</i>                    |
|                                | <b>Gemini South Observatory</b>   |                                       |
|                                | Australian Gemini Undergraduate Summer Studentship  | <i>Dec 2013 – Feb 2014</i>            |
| EDUCATION                      | <b>Australian National University</b>   |                                       |
|                                | Research Assistant to Prof. Lisa Kewley   | <i>Jan – Feb 2013, Jan – Jul 2016</i> |
|                                | <b>Ludwig-Maximilians-Universität München</b>   | <i>2016 – 2020</i>                    |
|                                | Dr. rer. nat. (Doctor of Natural Sciences), Faculty of Physics  |                                       |
|                                | <u>Thesis:</u> <i>Feedback in Galaxies During the Peak Epoch of Cosmic Star Formation Activity and Black Hole Growth</i>                        |                                       |
|                                | <u>Supervisor:</u> Dr. Natascha Förster Schreiber   |                                       |
| SUPERVISION<br>& TEACHING      | <b>Australian National University</b>   | <i>2012 – 2015</i>                    |
|                                | Bachelor of Philosophy (Honours), First Class Honours with the University Medal in Astronomy and Astrophysics                                   |                                       |
|                                | <u>Thesis:</u> <i>New Perspectives on AGN Host Galaxies From Integral Field Spectroscopy</i>  |                                       |
|                                | <u>Supervisor:</u> Prof. Lisa Kewley  |                                       |
|                                | <i>I have (co-)supervised 5 PhD students (1 completed), 3 Honours students (3 completed) and 2 Vacation students (1 completed).</i>             |                                       |
|                                | Member of Swinburne PhD Student Review Panels   | <i>2021 – present</i>                 |
| SELECTED<br>GRANTS &<br>PRIZES | <b>Lecturer</b> AST10001, Discovering the Universe (1st year undergrad)   | <i>2023 – present</i>                 |
|                                | External Masters and PhD Thesis Examiner  | <i>2022 – present</i>                 |
|                                | Swinburne Work Experience Facilitator   | <i>2023</i>                           |
|                                | <i>My excellence in research has been recognised through the following grants and awards with a total value of <b>AUD\$540,000</b>:</i>         |                                       |
|                                | <b>Superstars of STEM</b>   | <i>2025-26</i>                        |
|                                | One of 60 women selected to be Australian STEM ambassadors  |                                       |
|                                | <b>Swinburne Vice-Chancellor’s Research Excellence (Early Career) Award</b>   | <i>2024</i>                           |
|                                | For “Pioneering Studies of Galactic Outflows in the Early Universe”   |                                       |
|                                | <b>Swinburne Vice-Chancellor’s Research Excellence (Team) Award</b>   | <i>2024</i>                           |
|                                | Awarded to members of the Swinburne ASTRO 3D node.  |                                       |
|                                | <b>ISSI International Teams (co-lead with Sirio Belli, approx. AUD\$50,000)</b>   | <i>2024</i>                           |
|                                | “Multiphase Outflows in Galaxies at Cosmic Noon”  |                                       |
|                                | <b>ARC Discovery Early Career Researcher Award 2024 (AUD\$441,700)</b>  | <i>2023</i>                           |
|                                | “Galactic Outflows: Pushing the Distance Frontiers”   |                                       |
|                                | <b>ASTRO 3D Conference &amp; Workshop Funding (AUD\$15,000)</b>   | <i>2022</i>                           |
|                                | Funding for the international conference “New Views on Feedback & the Baryon Cycle in Galaxies” held July 17-21 2023, for which I was co-chair. |                                       |
|                                | <b>Gruber Foundation Fellowship (US\$25,000 or AUD\$32,500)</b>   | <i>2021</i>                           |
|                                | Research grant awarded by to the IAU to “extremely promising early career astrophysicists”, with up to 3 grants awarded globally each year.     |                                       |

|                                    |  |
|------------------------------------|--|
|                                    | <b>Harvard-Smithsonian Travel Grant (US\$500 or AUD\$670)</b> <span style="float: right;"><i>2020</i></span><br>Funding for travel to Harvard CfA to give a Galaxies & Cosmology Seminar<br><b>University Medal, Australian National University</b> <span style="float: right;"><i>2015</i></span><br>For exceptional academic excellence throughout an Honours Degree program<br><b>Australian Gemini Undergraduate Summer Studentship</b> <span style="float: right;"><i>2013 - 2014</i></span><br>10 week Research Internship at the Gemini South Headquarters in Chile   |
| OBSERVING PROGRAMS                 | <i>I have been very successful in obtaining competitive observing time, with PI and CoI programs valued at an estimated <b>AUD\$1.6M</b> and <b>AUD\$800K</b> respectively:</i><br><b>PI Programs:</b><br><u>VLT/XShooter</u> P115 (16 hours): <i>Where is the (HI-absorbing) neutral gas at intermediate redshift?</i><br><u>Keck</u> 2025A/B (3.5 nights): <i>Now you see it, now you don't: Examining the decline in strong NaD absorption between <math>z \sim 2</math> and <math>z \sim 0</math></i><br><u>Keck</u> 2025A (1 night): <i>Where is the (HI-absorbing) neutral gas at intermediate redshift?</i><br><u>Keck</u> 2024B (1 night): <i>Uncovering the nature of weak MgII absorbers at <math>3 &lt; z &lt; 4</math></i><br><u>JWST</u> Cycle 3 (18 hours NIRSpec primary, 12 hours NIRCам parallel): <i>Feedback and quenching: separating neutral gas in outflows and galaxies at <math>z \approx 2</math></i><br><u>Keck</u> 2024A (2 nights): <i>An Unbiased Survey of Neutral Outflows at the Peak Epoch of Star Formation</i><br><u>ANU 2.3m Telescope</u> (5 nights): <i>An Integral Field Study of Seyfert-LINER and LINER-HII transition objects</i><br><b>Selected Co-I programs</b><br><u>JWST</u> Cycle 4 (PI Greene, 17 hours NIRSpec primary): <i>Give me a break: the search for stars in a prototypical Little Red Dot</i><br><u>Gemini/GHOST</u> (PI Bosman, Large Program, 120 hours): <i>Quasars in the Cosmic Morning.</i><br><u>JWST</u> Cycle 3 (PI: Aravena, Medium Program, 32 hours NIRSpec primary): <i>ORCHIDS: ORigin of the [CII] Halos in Distant Systems</i><br><u>JWST</u> Cycle 1 (PI: Belli, Medium Program, 46 hours NIRSpec primary, 36 hours NIRCам parallel): <i>The Stellar and Gas Content of Galaxies at Cosmic Noon</i><br><u>VLT/MUSE</u> (PI: Farina, Large Program, 81 hours): <i>The cosmic Ecosystem of the first QSOs and Galaxies: a MUSE/XSHOOTER/JWST/ALMA Legacy Survey</i><br><u>ALMA</u> Cycle 8 (PI: Herrera-Camus, Large Program, 153 hours): <i>CRISTAL: a survey of gas, dust and stars on kiloparsec scales in star-forming galaxies at <math>z \sim 4-5</math></i> |
| MENTORING                          | <b>Mentorloop</b> <span style="float: right;"><i>2024 – present</i></span><br>Mentoring a PhD student at Curtin University.<br><b>Curious Minds STEM Mentor Program</b> <span style="float: right;"><i>2020 – 2022</i></span><br>Mentored 3 female high school students (Year 9-10) from rural areas to undertake personal interest projects in astrophysics and space exploration. This included curating learning materials at an appropriate level for the students.  |
| SERVICE & PROFESSIONAL INVOLVEMENT | <i>I actively contribute to the astronomy community through committee service, proposal reviews, conference organization and membership of professional bodies:</i><br><b>University Committees:</b><br>Swinburne Advisory Committee for Keck (SACK) - Co-Chair <span style="float: right;"><i>2025 – present</i></span><br>Swinburne Time Allocation Committee for Keck (STACK)   |

|   |             |
|---|-------------|
| Coordinator/Secretary                             | 2023 – 2025 |
| Postdoc Member                                    | 2021        |
| Swinburne Keck Room Operations Coordinator (KROC) | 2021 – 2023 |
| Swinburne Visiting Fellow Selection Panel         | 2023, 2024  |
| Swinburne CAS PhD Student Interview Panel         | 2023        |
| MPE IMPRS Student Representative                  | 2016 – 2019 |

#### External Committees and Expert Review

|  |                |
|--|----------------|
| AAT Time Allocation Committee (ATAC)                       | 2024 – present |
| ARC Centre of Excellence ASTRO 3D                          |                |
| Equity, Diversity and Inclusion Committee                  | 2024           |
| <i>Led writing of the 2024 Cultural Survey report</i>      |                |
| Junior Early Career Researcher Committee                   | 2021 – 2022    |
| ARC Detailed Assessor (DECRA, DP)                          | 2024 – present |
| External Expert Reviewer/Panelist for JWST                 |                |
| Cycle 4: External Panel Member                             | 2024           |
| Cycle 2: External Expert Reviewer                          | 2023           |
| Distributed Peer Review of Observing Proposals (ALMA, ESO) | 2022, 2023     |
| Scientific Referee for Nature, A&A, ApJ, and MNRAS         | 2015 – present |

#### Conference/Workshop Organization:

|  |             |
|--|-------------|
| Co-chair of the international conference <i>New Views on Feedback and the Baryon Cycle of Galaxies</i> (Healesville VIC) | 2023        |
| Organizing Committee, ASTRO 3D Academic Applications Workshop  | 2021        |
| LOC member for the conference “In Situ View of Galaxy Formation”   | 2016        |
| SOC member, 2014 Harley Wood Winter School   | 2013 – 2014 |

#### Professional Organizations

|   |                |
|---|----------------|
| Junior Member, International Astronomical Union (IAU) | 2022 – present |
| Full member, Astronomical Society of Australia (ASA)  | 2022 – present |

#### SELECTED CONFERENCE TALKS

*I have presented 35 talks at (inter)national conferences, and accepted 8 talk invitations in 2023-2025. Talks given in the last 3 years are listed below:*

|  |           |
|--|-----------|
| Kaba Kada: Exploring the first billion years of the Universe (AU)            | Sep 2025  |
| <b>Invite</b> Ascona Outflow Workshop (CH)                                   | Aug 2025  |
| <b>Invite</b> Astronomical Society of Australia Annual Science Meeting (AU)  | July 2025 |
| <b>Invite</b> Cosmic Ecosystems in Radio and optical (AU)                    | Dec 2024  |
| <b>Invite</b> ALMA+JWST view of the early Universe (NL)                      | Dec 2024  |
| Views on the Multiphase ISM in Galaxies (IT)                                 | Sep 2024  |
| AGN feedback and star formation across cosmic scales and time (IT)           | Sep 2024  |
| <i>Review:</i> ASA Annual Science Meeting (Remote/AU)                        | Jun 2024  |
| <b>Invite</b> ELT Science in Light of JWST (JP)                              | Jun 2024  |
| Metal Production in a Hierarchical Universe (Remote/CL)                      | Nov 2023  |
| Galaxy Transformation Across Space and Time (AU)                             | Sep 2023  |
| Asia-Pacific Regional IAU Meeting (Remote/JP)                                | Aug 2023  |
| AMACAR Gas in Galaxies (Remote/AU)   | Jul 2023  |
| <b>Invite</b> New Views on the Baryon Cycle of Galaxies (AU)                 | Jul 2023  |
| <b>Invite</b> Shedding light on the first Gyr of the Universe (Remote/FR)    | Jul 2023  |
| <a href="#">Annual Meeting of the Astronomical Society of Australia</a> (AU) | Jul 2023  |
| Showcasing first results on the early Universe from JWST (US)                | Jun 2023  |
| <b>Invite</b> American Physical Society "Quarks to Cosmos" (Remote/US)       | Apr 2023  |
| <a href="#">Charting the Metallicity Evolution of the Universe</a> (IT)      | Sep 2022  |
| Gas2022: What Matter(s) around Galaxies (IT)                                 | Sep 2022  |

|                   |   |             |
|-------------------|---|-------------|
| SELECTED SEMINARS | <i>I have presented <b>19</b> colloquia and department seminars spread across Australia, Japan, the UK, Germany, the US, Chile, and Brazil, including 5 <b>invited seminars</b>. Seminars given in the last 4 years are listed below:</i> |             |
|                   | <b>Invited</b> Australian National University   | Mar 2024    |
|                   | Australian National University, University of Sydney, University of NSW, and Macquarie University   | Oct 2022    |
|                   | <b>Invited</b> Colloquium, University of Melbourne  | Aug 2021    |
|                   | <b>Invited</b> AGN Webinar, IAG, USP (Universidade de Sao Paulo, Brazil)  | Jul 2021    |
|                   | <b>Invited</b> Colloquium, Osaka University   | Jun 2021    |
|                   | <b>Invited</b> Galaxies & Cosmology Seminar, Harvard-Smithsonian CfA  | Feb 2020    |
|                   | <i>I am passionate about inspiring the next generation of scientists and am actively involved in outreach programs:</i>   |             |
|                   | <b>Speaker for Pint of Science</b>  | May 2025    |
|                   | Sold out event - "Waves of Discovery: From Cosmic Chaos to Galactic Grumbles"   |             |
| OUTREACH, DEI     | <b>Panellist for "Meet a Scientist"</b>   | July 2024   |
|                   | Part of Swinburne Youth Space Innovation Challenge  |             |
|                   | <b>Interview for SpaceTime Podcast: S27E58</b> (segment starts at 04:11)  | May 2024    |
|                   | <b>Interview for Astrophiz Podcast: Galactic Outflows</b>   | Nov 2023    |
|                   | <b>Swinburne/CAS: Public Talk</b> and Telescope Viewing   | May 2023    |
|                   | <b>Guest appearance on Clubhouse App (Quantum Photonics)</b>  | Mar 2023    |
|                   | 1.5 hr public presentation + Q&A. <b>Recording</b> and <b>Slides</b> available.   |             |
|                   | <b>School Q&amp;A Session</b>   | 2021        |
|                   | Addressed a primary school class (remotely) on the ethics of space travel.  |             |
|                   | <b>Outreach, Max Planck Institute for Extraterrestrial Physics</b>  | 2016 – 2020 |
| SELECTED MEDIA    | - Assisted at events including <i>Girls Day</i> and <i>Tag der Offenen Tür</i> (Open Day)   |             |
|                   | - Ran guided tours for visiting student groups  |             |
|                   | <b>Student Ambassador, ANU CPMS</b>   | 2013-2015   |
|                   | - Helped at Science & Engineering Challenge, Maths Day  |             |
|                   | - Represented ANU at Open Days and Careers Expos  |             |
|                   | - Helped coordinate the ANU World Record Stargazing event in August 2015  |             |
|                   | <b>ANU Black Hole Society</b> (1st Year Rep, Secretary, President)  | 2012 – 2015 |
|                   | - Ran outreach events for National Science Week and the transit of Venus  |             |
|                   | - Coordinated a public lecture series and oversaw events planning for the society   |             |
|                   | <i>I have been interviewed by mainstream and University media, both regarding my research and for expert opinion on astronomy-related news stories:</i>   |             |
|                   | <b>Aljazeera Live TV Interview</b> – signs of life on K218b   | 2025        |
|                   | <b>Joy FM Drive</b> (x3 interview segments)   | 2025        |
|                   | <b>Supermoon and partial lunar eclipse</b>  | 2024        |
|                   | 9 news, Herald Sun, ABC Western Plains Breakfast Radio, Triple M Perth  |             |
|                   | <b>Swinburne press release: New JWST observations reveal black holes rapidly shut off star formation in massive galaxies</b>  | 2024        |
|                   | <b>Universe Today</b> article about results from Davies et al. (2024): Supermassive Black Holes Shut Down Star Formation During Cosmic Noon   | 2023        |
|                   | <b>ASTRO 3D Press Release</b> for Davies et al. (2023b): <b>Tracing 13 billion years of cosmic history by the light of ancient quasars</b>  | 2023        |
|                   | Also released by <i>Science in Public</i> , <i>University of Cambridge</i> , <i>INAF</i> (Italian)  |             |
|                   | Featured in 16 English articles: <i>CareerSpot</i> , <i>COSMOS magazine</i> , <i>Innovation News Network</i> , <i>Mirage</i> , <i>The National Tribune</i> , <i>News Beezer</i> , <i>News Trackerz</i> , <i>Phys.org</i> ,                |             |
|                   |   |             |

*Protect and Love Pets, Researchnews, Sci News, Science Springs, Space Daily, Tech Explorist, Universe Today, University of Sharjah*

23 international articles in 7 languages: Dutch: *Astronieuws.nl*, *allesoversterrenkunde.nl*, *astroblogs*, *Zenit*, French: *Futura*, *free*, German: *scinexx*, Italian: *Esquire*, *Global Science*, *Meteoweb*, Portuguese: *msn.com*, *Planeta*, Spanish: *Cosmo Universitario*, *Cronica*, *Diario Estrategia*, *Europapress*, *ferplei.com*, *invdes.com*, *La Nacion*, *Notimerica*, *Publimetro*, *La Vida*, Turkish: *teknomers*

**ASTRO 3D Monthly Media:** Probing the outskirts of galaxies with quasars 2022  
Description of work by 2021-2022 ASTRO 3D vacation scholar Jennifer Shi

**AAL ESO Blog:** KMOS and SAMI Reveal the Mechanisms Governing the Electron Density in Star-Forming Regions across Cosmic History 2021

**Women Astronomers Day:** Swinburne celebrates women astronomers 2021

**ANU Student Profile:** 2015  
Article: <https://rsaa.anu.edu.au/study/student-profiles/rebecca-davies-0>  
Interview: <https://www.facebook.com/watch/?v=10153659689781294>

**AGUSS Studentship:** 2014  
Refraction media: <https://careerswithstem.com.au/student-exchanges/>  
Blog post: <https://aat.anu.edu.au/science/students/gemini-summer/experiences#rebecca>