

Dr. Rebecca Louise Davies

ARC DECRA Fellow, Swinburne University of Technology

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POSITIONS	Swinburne University of Technology	
	ARC DECRA Fellow (Level B)	2024 – 2026
	Postdoctoral Research Fellow (Level B)	2023
	Postdoctoral Research Associate (Level A)	2020 – 2022
	Gemini South Observatory	
	Australian Gemini Undergraduate Summer Studentship	Dec 2013 – Feb 2014
	Australian National University	
	Research Assistant to Prof. Lisa Kewley	Jan – Feb 2013, Jan – Jul 2016
EDUCATION	Ludwig-Maximilians-Universität München	2016 – 2020
	Dr. rer. nat. (Doctor of Natural Sciences), Faculty of Physics	
	<u>Thesis: <i>Feedback in Galaxies During the Peak Epoch of Cosmic Star Formation Activity and Black Hole Growth</i></u>	
	<u>Supervisor: Dr. Natascha Förster Schreiber</u>	
	Australian National University	2012 – 2015
	Bachelor of Philosophy (Honours), First Class Honours with the University Medal in Astronomy and Astrophysics	
	<u>Thesis: <i>New Perspectives on AGN Host Galaxies From Integral Field Spectroscopy</i></u>	
	<u>Supervisor: Prof. Lisa Kewley</u>	
SELECTED GRANTS & PRIZES	<i>My excellence in research has been recognised through the following grants and awards with a total value of AUD\$490,000:</i>	
	ARC Discovery Early Career Researcher Award 2024 (AUD\$441,700)	2023
	“Galactic Outflows: Pushing the Distance Frontiers”	
	ASTRO 3D Conference & Workshop Funding (AUD\$15,000)	2022
	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.	
	Gruber Foundation Fellowship (US\$25,000 or AUD\$32,500)	2021
	Research grant awarded by to the IAU to “extremely promising early career astrophysicists”, with up to 3 grants awarded globally each year.	
	Harvard-Smithsonian Travel Grant (US\$500 or AUD\$670)	2020
	Funding for travel to Harvard CfA to give a Galaxies & Cosmology Seminar	
	University Medal, Australian National University	2015
For exceptional academic excellence throughout an Honours Degree program		
Australian Gemini Undergraduate Summer Studentship	2013 - 2014	
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 AUD\$300K and AUD\$800K respectively:</i>	
	Keck (as <u>Principal Investigator</u> , 2 nights): <i>An Unbiased Survey of Neutral Outflows at the Peak Epoch of Star Formation</i>	
	ANU 2.3m Telescope (as <u>Principal Investigator</u> , 5 nights): <i>An Integral Field Study of Seyfert-LINER and LINER-HII transition objects</i>	

JWST (PI: Belli, Medium Program, 46 hours NIRSpec primary and 36 hours NIRCам parallel): *The Stellar and Gas Content of Galaxies at Cosmic Noon*
VLT/MUSE (PI: Farina, Large Program, 81 hours): *The cosmic Ecosystem of the first QSOs and Galaxies: a MUSE/XSHOOTER/JWST/ALMA Legacy Survey*
ALMA (PI: Herrera-Camus, Large Program, 153 hours): *CRISTAL: a survey of gas, dust and stars on kiloparsec scales in star-forming galaxies at $z\sim 4-5$*

SUPERVISION AND TEACHING *I have supervised 6 PhD, Honours and Vacation students and completed a semester of teaching as lecturer/tutor for an undergraduate astronomy course:*

Primary Supervisor (2 students):

Stephanie Rowlands (Honours part time, Swinburne) *Aug 2022 – Nov 2023*
 Jennifer Shi (Vacation Scholar, Swinburne) *Nov 2021 – Feb 2022*
Jennifer is pursuing a Masters in Astrophysics at the University of Melbourne

Co-Supervisor (4 students):

Tahlia Hill (Vacation Scholar, Swinburne) *Dec 2023 – Feb 2024*
 Alma Sebastian (PhD, Swinburne) *2022 – present*
 Peixin Zhu (PhD, ANU/Harvard) *2021 – present*
 Aman Chopra (Honours, ANU) *2021*
Aman's thesis was awarded a HD and he now works for Geoscience Australia.

Lecturer/Tutor for Swinburne undergraduate course AST10001: *Discovering the Universe* *Semester 2, 2023*
 Swinburne Work Experience Facilitator *2023*
 External Masters Thesis Examiner (QUT) *2022*
 Member of 3 Swinburne PhD Student Review Panels *2021 – present*
 Private Physics and Mathematics Tutor *2012, 2015 – 2016*

SERVICE & PROFESSIONAL INVOLVEMENT *I actively contribute to the astronomy community through committee service, proposal reviews, conference organization and membership of professional bodies:*

Committees and Expert Review:

Swinburne Time Allocation Committee for Keck (STACK)
 Technical Secretary *2023 – present*
 Postdoc Member *2021*
 Swinburne Keck Room Operations Coordinator (KROC) *2021 – 2023*
 ASTRO 3D Junior Early Career Researcher Committee *2021 – 2022*
 Swinburne Visiting Fellow Selection Panel *2023*
 Swinburne CAS PhD Student Interview Panel *2023*
 External Expert Reviewer for JWST Cycle 2 Proposals *2023*
 Distributed Peer Review of Observing Proposals (ALMA, ESO) *2022 – present*
 Scientific Referee for A&A, ApJ, and MNRAS *2015 – present*
 MPE IMPRS Student Representative *2016 – 2019*

Conference/Workshop Organization:

Co-chair of the international conference “New Views on Feedback and the Baryon Cycle of Galaxies” (Healesville VIC, July 17-21 2023) *2022 – 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>I have presented 35 talks at national and international conferences, including 3 invited talks in 2023. Talks given in the last 3 years are listed below:</i>
	Metal Production and Distribution in a Hierarchical Universe – II Nov 2023
	Galaxy Transformation Across Space and Time Sep 2023
	Asia-Pacific Regional IAU Meeting Aug 2023
	AMACAR Gas in Galaxies Jul 2023
	Invited New Views on Feedback and the Baryon Cycle of Galaxies Jul 2023
	Invited Shedding new light on the first billion years of the Universe Jul 2023
	Annual Meeting of the Astronomical Society of Australia Jul 2023
	First Light - showcasing first results on the early Universe from JWST Jun 2023
	Invited American Physical Society April Meeting "Quarks to Cosmos" Apr 2023
	Charting the Metallicity Evolution of the Universe Sep 2022
	Gas2022: What Matter(s) around Galaxies Sep 2022
	A Holistic View of Stellar Feedback and Galaxy Evolution Jul 2022
	Large-Volume Spectroscopic Analyses of Galaxies in the Era of JWST Mar 2022
	Annual Scientific Meeting of the Astronomical Society of Australia Jul 2021
	EAS: S10 (Black Hole Accretion) and S7 (Quasars at the EoR) Jul 2021
	Past, Present and Future of Galaxy Evolution Apr 2021
SELECTED SEMINARS	<i>I have presented 19 colloquia and department seminars spread across Australia, Japan, the UK, Germany, the US, Chile, and Brazil, including 4 invited seminars. Seminars given in the last 4 years are listed below:</i>
	Australian National University, University of Sydney, University of NSW, and
	Macquarie University Oct 2022
	Invited Colloquium, University of Melbourne Aug 2021
	Invited AGN Webinar, IAG, USP (Universidade de Sao Paulo, Brazil) Jul 2021
	Invited Colloquium, Osaka University Jun 2021
	Invited Galaxies & Cosmology Seminar, Harvard-Smithsonian CfA Feb 2020
MENTORING, OUTREACH, DEI	<i>I am passionate about inspiring the next generation of scientists and am actively involved in outreach and mentoring programs:</i>
	Interview for Astrophiz Podcast: Galactic Outflows Nov 2023
	Swinburne/CAS: Public Talk and Telescope Viewing May 2023
	Guest appearance on Clubhouse App (Quantum Photonics) Mar 2023
	1.5 hr public presentation + Q&A. Recording and Slides available.
	Curious Minds STEM Mentor Program 2020 – 2022
	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.
	School Q&A Session 2021
	Addressed a primary school class (remotely) on the ethics of space travel.
	Outreach, Max Planck Institute for Extraterrestrial Physics 2016 – 2020
	- Assisted at events including <i>Girls Day</i> and <i>Tag der Offenen Tür</i> (Open Day)
	- Ran guided tours for visiting student groups
	Student Ambassador, ANU CPMS 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
	ANU Black Hole Society (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

SELECTED
MEDIA

My research and achievements have been featured in many articles from both mainstream and University media:

Universe Today article about results from Davies et al. (2023c, under review):
Supermassive Black Holes Shut Down Star Formation During Cosmic Noon *2023*
ASTRO 3D Press Release for Davies et al. (2023b): [Tracing 13 billion years of
cosmic history by the light of ancient quasars](#) *2023*

Also released by *Science in Public*, *University of Cambridge*, *INAF* (Italian)
Featured in 16 English articles: *CareerSpot*, *COSMOS magazine*, *Innovation News
Network*, *Mirage*, *The National Tribune*, *News Beezer*, *News Trackerz*, *Phys.org*,
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>