

Melanie Kaasinen

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Research Interests

Galaxy evolution, high-redshift galaxies, star formation, the interstellar medium

Education

- 09/2017 – 08/2021 **Doctor of Science, Astronomy**
Max Planck Institute for Astronomy (MPIA), Heidelberg
Institute for Theoretical Astrophysics (ITA), Heidelberg University
Thesis: The Molecular Interstellar Medium in Distant Galaxies
Supervisors: Dr. Fabian Walter and apl. Prof. Simon Glover
- 02/2015 – 11/2016 **Masters of Astronomy and Astrophysics (Advanced)**
Australian National University (ANU), Canberra
Thesis: The Evolution of the Ionized Interstellar Medium of Star-Forming Galaxies
Supervisor: Prof. Lisa Kewley
- 01/2012 – 07/2014 **Bachelor of Applied Science**
Queensland University of Technology (QUT), Brisbane
Majors: Physics and Applied Mathematics
GPA: 6.952/7

Academic Employment

- 10/2021 – **ESO Fellow (Garching)**
Independent research fellowship at the European Southern Observatory
Headquarters in Garching by Munich
- 01/2017 – 05/2017 **Research Assistant (ANU)**
Short-term research position in the research group of Prof. Lisa Kewley

Scholarships and Prizes

- 09/2017 - 09/2021 **International Max Planck Research School (Heidelberg) Fellowship**
Funding awarded to up to two of the most promising candidates (from over 100 applicants) to undertake a PhD in Astronomy with the flexibility to work with any supervisor/s and at any astronomy/astrophysics institute in Heidelberg
- 2016 **University Medal** - The Australian National University
Recognises students who have obtained First Class Honours or Masters Advanced equivalent and demonstrated exceptional academic excellence across their studies
- 01/2015 - 11/2016 **RSAA Masters (Advanced) Scholarship**
Scholarship awarded for the duration of the Masters of Astronomy and Astrophysics based on academic merit

Teaching Experience

July 2022	Lectured students taking part in the ESO Summer Student Programme on <i>The Cold Interstellar Medium</i>
2020, 2022	Creator and host of workshops on scientific writing at the ITA, MPIA and ESO
2018 Summer Semester	Tutor at the University of Heidelberg for the Master of Science Physics course: <i>The Physics and Chemistry of the ISM</i>
2012 - present	Creator and host of astronomy workshops for high school students

Supervision and Mentoring

May – July 2022	3-month Master’s internship project at ESO <i>The Gas Fractions of Quenched Galaxies in the Hubble Ultra Deep Field</i>
April 2022 – April 2023	1-year Master’s thesis <i>Using radiative transfer models and cosmological simulations to map the cold gas emission of distant galaxies (Ravishankar in prep.)</i>
July – August 2023	6-week ESO Summer Research Programme project <i>Probing the first galaxies with ALMA</i>
October 2021 –	ESO fellow mentor to PhD students Ivanna Langan, Francesco Guarneri, Laya Ghodsi, and Fuheng Liang

Successful Telescope Proposals (as PI or main developer)

IRAM/NOEMA S23CE (2023)	<i>Extending Gas Scaling Relations to Low-Mass Galaxies at Cosmic Noon</i> (40.7 hours)
VLT/CRIRES P110.2485 (2022)	<i>Preparing for Sky Subtraction in the ELT Era</i> (30 hours)
ALMA 2022.1.00319.S (2022)	<i>Fully Constraining the Average Molecular ISM Conditions at the Peak Epoch of Star Formation</i> (8.7 hours)
ALMA 2022.1.00120.S (2022)	<i>Resolving the Star-Forming Gas of a Main-Sequence Galaxy at Cosmic Noon</i> (46 hours)
IRAM/NOEMA S20BV (2020)	<i>How thermalized is the molecular ISM at $z \sim 2$?</i> (30 hours)

Professional Membership/Activities

2022 –	Member of the PASSAGES (lensed starburst) collaboration
2022 –	Member of the AGEL (lensed galaxy) collaboration
2022	Scientific assistant for the ESO Observing Programmes Committee
2022 – 2023	Member of the ESO Student Selection Committee
2021 –	Junior IAU member
2019 –	Referee for MNRAS and ApJ
2018 –	ASTRO 3D affiliate member
2018 – 2020	MPIA Gender Equality Officer (<i>Gleichstellungsbeauftragte</i>)
2017 –	Member of the ASPECS (ALMA LP) Collaboration
2016	Member of the RSAA Colloquium Committee
2016	Member of the RSAA Education Committee
2015	Co-organiser of the 2015 Mt Stromlo Student Seminars

Conferences, Seminars, and Colloquia (since 2019)

- Jun. 2023 *Contributed talk* at “Observing the Universe at millimetre wavelengths”
Mar. 2023 *Invited colloquium* at Durham’s Astronomy Research Cluster
Mar. 2023 *Contributed talk* at MAYA 2023 (the Meeting of ALMA Young Astronomers)
Sep. 2022 *Invited seminar* at the International Centre for Radio Astronomy (UWA, Perth)
Sep. 2022 *Invited colloquium* at Swinburne’s Centre for Astrophysics and Supercomputing
Sep. 2022 *Invited colloquium* at ANU’s Research School and Astronomy and Astrophysics (RSAA)
Aug. 2022 *Contributed talk* at IAU Symp. 373: “Resolving the Rise and Fall of Star Formation in Galaxies”
Mar. 2022 *Contributed Talk* at MAYA 2022
Nov. 2020 *Invited seminar* at the Harvard-Smithsonian Center for Astrophysics
Oct. 2020 *Contributed talk* at “The Rise of Metals and Dust in Galaxies through Cosmic Time” conference
Oct. 2020 *Lunch talk* at ESO
Sep. 2019 *Contributed talk* at “Views on the Interstellar Medium of Galaxies in the ALMA Era”
June 2019 *Poster* at IAU Symp. 352 “Uncovering early galaxy evolution in the ALMA and JWST era”
Apr. 2019 *Lunch talk* at ESO
Feb. 2019 *Invited colloquium* at the University of Melbourne’s School of Physics
Feb. 2019 *Invited colloquium* at Swinburne’s Centre for Astrophysics and Supercomputing
Jan. 2019 *Mt Stromlo Astronomical Colloquium*

Public Outreach

- 10/2022 - **Presenter and Outreach Content Developer** at the ESO Supernova
– Giving planetarium shows in German and English
– Explaining astrophysics concepts to a variety of audiences
– Developing content for Girls Day and planetarium shows
- 10/2017 - 12/2020 **Outreach Fellow** at the Haus der Astronomie in Heidelberg
– Giving in-person and virtual public talks in German and English
(e.g. <https://www.haus-der-astronomie.de/3789189/the-dish-en>)
– Explaining astrophysics concepts to a variety of audiences
– Guiding visitors around the institute facilities
- 03/2015 - 09/2016 **Public outreach volunteer** at the Research School of Astronomy and Astrophysics
– Explaining astrophysics concepts to a variety of audiences
– Stargazing with primary and secondary school students (and their teachers)
– Guiding visitors around the observatory facilities
- 12/2015 - 09/2016 **Science Student Ambassador** at ANU
– Providing information about science, University life and courses to prospective students
- 12/2012 - 06/2014 **STEM Student Ambassador, QUT**
– Designing and hosting astrophysics workshops for high school classes
– Tutoring grade 11 students during a science camp

Coding/Programming Experience

- Computer languages: Python, IDL, Matlab, SQL
Editing/version control: Latex, Vim, Git
Data reduction software: CASA (used to reduce the data published in Kaasinen+ 2019, 2020, 2022, 2023)
GILDAS (Kaasinen et al. in prep.)
Keck/DEIMOS pipeline and own IDL scripts (used to reduce the data published in Kaasinen et al. 2017, 2018)
Codes & Packages used: AREPO (moving mesh hydrodynamics code), POLARIS (radiative transfer code), MAPPINGS (plasma modelling code)