

Katherine Ormerod

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RESEARCH INTERESTS

High-redshift galaxies, galaxy formation and evolution, cosmic reionisation, dust formation and properties, galaxy morphology, multi-wavelength astronomy, resolved studies of galaxies

EDUCATION

Astrophysics PhD, 2023 - Present

Astrophysics Research Institute, Liverpool John Moores University

Thesis: *A Multi-Wavelength View of Dust and Star Formation in Reionisation-Era Galaxies*

Supervisors: Dr Renske Smit (LJMU), Dr Joris Witstok (DAWN)

Astronomy & Astrophysics MSc by Research, 2022 - 2023

Jodrell Bank Centre for Astrophysics, University of Manchester

Thesis: *The Size and Shape Evolution of Galaxies using the James Webb Space Telescope*

Supervisor: Prof. Christopher J. Conselice

Physics, Astrophysics and Cosmology BSc (Hons), 2018 - 2021

Lancaster University

Thesis: *Investigating the properties of potential metal poor stars in the Milky Way*

Supervisor: Dr David Sobral

SELECTED PUBLICATIONS

18 total publications, including **2** first author, **804** total citations (144 to first-author publications), **h-index=14**. For a full list of publications, see my [NASA ADS link](#).

First Author:

1. Detection of the 2175Å UV bump at $z > 7$: evidence for rapid dust evolution in a merging reionization-era galaxy, **Katherine Ormerod**, Joris Witstok, Renske Smit, et al. 2025, MNRAS, 542, 1136–1154
2. EPOCHS VI: the size and shape evolution of galaxies since $z \sim 8$ with JWST observations, **Katherine Ormerod**, Christopher J. Conselice et al., 2024, MNRAS, 527, 6110–6125 (**>100 citations**, Web of Science Highly Cited Paper 2023)

Selected Co-authored Papers:

1. Detection of [OIII] 88μm in JADES-GS-z14-0 at $z = 14.1793$, Sander Schouws, Rychard J. Bouwens, **Katherine Ormerod**, et al. 2025, ApJ, 988, 19.
Led analysis of CLOUDY models that yielded a robust lower limit on the oxygen abundance.
2. Galaxy Quenching at the High Redshift Frontier: A Fundamental Test of Cosmological Models in the Early Universe with JWST-CEERS, Asa Bluck, Christopher J. Conselice, **Katherine Ormerod**, et al. 2024, ApJ, 961, 163.
Led morphological analysis of galaxy sample through surface brightness fitting.

SUCCESSFUL OBSERVING PROPOSALS

3 principal investigator (~60 hours), 6 co-investigator

Principal investigator:

- ‘Constraining Dust Formation at Cosmic Dawn with Luminous UV Bump Galaxies’, JWST/NIRSpec IFU, 19.1 hours
- ‘The 2175Å UV bump as a signpost of NIRCам dark star formation’, NOEMA interferometer, 25 hours
- ‘Unveiling dust build up in a ‘UV bump’ galaxy at $z=7.1$ with JWST+NOEMA’, NOEMA interferometer, 16 hours (Co-PI)

Co-Investigator:

- ‘Confirming surprisingly high metallicities in galaxies in the Epoch of Reionization’, JWST/NIRSpec IFU, 18.9 hours
- ‘Pushing the Dust Frontier: Characterisation of the Most Distant Dusty Galaxy’, JWST/NIRSpec IFU, 1.8 hours
- ‘Using [NIII]57 to constrain N/O in GSz14: uncovering the origin of ultra-luminous galaxies at $z>10$ ’, 2025.1.01269.S, ALMA, 25.4 hours
- ‘Confirming Three Hidden ULIRGs in the Epoch of Reionization’, 2025.1.00232.S, ALMA, 9.6 hours
- ‘Unveiling the ISM at $z>14$: A Critical Study of [CII]158μm in GS-z14’, 2024.A.00007.S, ALMA, 19.3 hours
- ‘A measurement of [N/O] abundance at $z=12.3$: on the origin of ultra-luminous galaxies at cosmic dawn’, 2024.1.01645.S, ALMA, 7.9 hours

CONFERENCE TALKS

Invited Talks

- 2026 *Exploring the Aromatic Universe in the JWST Era*, London, Ontario, Canada - **Invited highlight talk**: “JWST observations of the 2175Å UV Bump at high redshift”
- 2026 *Miracles of the Early Universe Meeting II*, Geneva, Switzerland - **Invited speaker**
- 2026 *From Dust till Dawn*, Leiden, Netherlands - **Invited speaker**

Contributed Talks

- 2025 *First Galaxies*, Oxford, UK
- 2024 *Dust and Gas Throughout Cosmic Time*, Hiroshima, Japan (virtual)
- 2024 *National Astronomy Meeting*, Hull, UK
- 2024 *Extreme Galaxies in Their Extreme Environments at Extremely Early Epochs*, Reykjavik, Iceland
- 2024 *Raising the Veil on Star Formation Near and Far*, Cambridge, UK
- 2023 *National Astronomy Meeting*, Cardiff, UK

HONOURS AND FUNDING

- 2026 British Federation of Women Graduates North West Travel Bursary (£500)
- 2025-26 LJMU Postgraduate Conference Travel Fund (£400)
- 2023 Web of Science top 1% cited publication in astronomy & astrophysics during 2023 for *EPOCHS VI: the size and shape evolution of galaxies since $z \sim 8$ with JWST observations*
- 2018 Lancaster Scholarship for academic achievement (£2000)

ACADEMIC SERVICE AND OUTREACH

- Member of the Scientific Organising Committee for the NAM 2025 Session “**Forging the elements: Understanding chemical evolution and stellar populations across cosmic time**”.
- Reviewer for the **Astrophysical Journal**.
- Reviewer for **Astronomy & Astrophysics**.
- Deliver outreach talks aimed at 11-18 year old students in local schools (2023-Present)
- Delivered a public talk at Research Roasters as part of the 2024 British Science Festival

TEACHING AND SUPERVISION

Supervision

- 2025-26 Co-supervision of Masters student searching for the 2175Å UV bump feature in archival data
- 2025-26 Co-supervision of three BSc students
- 2024-25 Co-supervision of two BSc students

Teaching

- 2025-26 Graduate teaching assistant for undergraduate Galaxies module - LJMU
- 2024-25 Graduate teaching assistant for undergraduate Introduction to Astrophysics module - LJMU
- 2022-23 Undergraduate lab demonstrator - University of Manchester

DATA REDUCTION

- Extensive experience reducing and imaging NOEMA data using GILDAS
- Extensive experience reducing ALMA data, producing spectral line cubes with CASA
- Experience with the JWST NIRSpec/IFU pipeline, attended ESA JWST data reduction masterclass

OTHER TRAINING

- 2026 2026 ALMA Workshop, Manchester, UK
- 2025 2nd IAA-CSIC Severo Ochoa Advanced School on Galaxy Evolution, Granada, Spain
- 2023 ESA JWST Data Masterclass, Madrid, Spain