

Dr Ethan D. Taylor

 ORCID |  Personal Website |  Email

RESEARCH INTERESTS

Nature of Dark Matter — Galaxy Formation & Evolution — Globular Cluster Formation & Evolution — Low-Mass Galaxies — Cosmological Simulations — Elemental Anticorrelations

EMPLOYMENT

Postdoctoral Research Associate
University of Surrey, United Kingdom

October 2024 – Present
Grant Number: ST/Y002865/1

EDUCATION

Ph.D in Astrophysics (Awarded February 2025)
University of Surrey, United Kingdom

October 2020 – September 2024

MPhys in Physics with Astrophysics
Northumbria University, United Kingdom

September 2016 – August 2020

PUBLICATIONS

Total Publications: 7; Refereed: 6; Primary Author: 1; $\geq 3^{\text{rd}}$ Author: 4; h -index: 6;
[ORCID](#); [ADS Listing](#); citations compiled by SAO/NASA Astrophysics Data System

Highlighted Publications

- **Taylor, Ethan D.** et al. **Sept. 2025**. “The emergence of globular clusters and globular-cluster-like dwarfs”. In: *Nature* 645.8080, pp. 327–331. doi: [10.1038/s41586-025-09494-x](https://doi.org/10.1038/s41586-025-09494-x). arXiv: [2509.09582 \[astro-ph.GA\]](https://arxiv.org/abs/2509.09582).
- Rey, Martin P., **Taylor, Ethan** et al. **Aug. 2025**. “EDGE: the emergence of dwarf galaxy scaling relations from cosmological radiation-hydrodynamics simulations”. In: *Monthly Notices of the Royal Astronomical Society* 541.2, pp. 1195–1217. doi: [10.1093/mnras/staf1058](https://doi.org/10.1093/mnras/staf1058). arXiv: [2503.03813 \[astro-ph.GA\]](https://arxiv.org/abs/2503.03813).
- Gray, Emily I., Read, Justin I., **Taylor, Ethan**, et al. **May 2025**. “EDGE: a new model for nuclear star cluster formation in dwarf galaxies”. In: *Monthly Notices of the Royal Astronomical Society* 539.2, pp. 1167–1179. doi: [10.1093/mnras/staf521](https://doi.org/10.1093/mnras/staf521). arXiv: [2405.19286 \[astro-ph.GA\]](https://arxiv.org/abs/2405.19286).

GRANTS & AWARDS

Vice-Chancellor Researcher of the Year Finalist

December 2025

Faculty Researcher of the Year (£250)

2025

School Researcher of the Year

2025

SCIENTIFIC COLLABORATION

LSST Junior Associate
EDGE Collaboration

2023 – Present
2020 – Present

COMPUTER & TELESCOPE TIME

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|------|---------------------|------|----------------|
| 2025 | HST Cycle 33 | Co-I | 33 Orbits |
| 2025 | Keck Telescope Time | Co-I | 1 Night |
| 2024 | EDGE3.0 | Co-I | 150M CPU Hours |
| 2020 | EDGE2.0 | Co-I | 50M CPU Hours |

TEAM MANAGEMENT & LEADERSHIP

EDGE3.0

DiRAC Featured Project

I am currently leading the management and delivery of the EDGE3.0 simulation suite, a 150M CPU-hour allocated project on DiRAC the UKs national supercomputer. This project builds from the success of the EDGE2.0 simulation suite introducing higher mass dwarf galaxies (up to $6 \times 10^{10} M_{\odot}$) at the same spatial resolution of 3pc.

EDGE2.0

I have previously supported the delivery of the EDGE2.0 simulation suite, a 50M CPU-hour allocation on DiRAC. This simulation suite built upon the previous success of EDGE expanding the complete suite to higher mass ($1 \times 10^{10} M_{\odot}$), and alternate cosmologies (3keV, 6keV, 12keV WDM relic particle masses). The EDGE2.0 also introduced a set of physics improvements over the original EDGE suite (see [here](#) for details).

Surrey Astro Group Lunch Talks

During my time apart of the Surrey Astrophysics group I organised and chaired the internal group lunch talks session. This involved the management of schedules and handling of time keeping and questions.

SUPERVISION & MENTORING

A. Mkiza (Oxford Brookes University)

2025 - present

Mentor via The Cowrie Scholarship Foundation

C. Cox (University of Surrey)

2025

Co-supervision of Bsc Final year project

EDGE: Characterising Dark Matter Subhalos in Simulated Dwarf Galaxies

Achieved Grade: 75%

OUTREACH EFFORTS

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|----------|---------------|------------------------------|
| Oct 2025 | Outreach Talk | Farnham Astronomical Society |
| Oct 2024 | Outreach Talk | Surrey High Street Take Over |
| Oct 2023 | Outreach Talk | Surrey High Street Take Over |
| Oct 2022 | Outreach Talk | Surrey High Street Take Over |

ACADEMIC PRESENTATIONS

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|----------|--------------------|--|
| Jun 2026 | Invited Talk* | Local GCs and GC Systems - Sextens Workshop |
| Mar 2026 | Invited Talk* | Hertfordshire Astro group seminar series |
| Mar 2026 | Invited Talk* | Birmingham University Seminar Series |
| Feb 2026 | Invited Talk* | Halifax Nova Scotia, Canada Seminar Series |
| Sep 2025 | Contributed Talk | Bridging Scales 2025, Matera - Italy |
| Jul 2024 | Contributed Poster | Small Galaxies, Cosmic Questions II, Durham University |
| Feb 2024 | Contributed Talk | Building Galaxies From Scratch, Vienna |
| Dec 2023 | Invited Talk | M.I.T. Journal Club |
| Nov 2023 | Invited Talk | FLAT talk at Durham University |
| Jul 2023 | Contributed Talk | Galactic Archaeology with old stellar populations - NAM 2023 |
| Jul 2023 | Contributed Talk | Astrophysical Simulations: Keeping up with the Frontier - NAM 2023 |
| Nov 2022 | Invited Talk | Northumbria University Seminar Series |
| Sep 2022 | Contributed Talk | 4th Wetton Workshop |
| Sep 2021 | Contributed Talk | Ramses User Meeting |
| Jul 2021 | Contributed Talk | Low Surface Brightness Universe - NAM 2021 |

* Indicates talks scheduled to be delivered at a later date

LIST OF PUBLICATIONS

- [1] Taylor, Ethan D. et al. Sept. 2025. “The emergence of globular clusters and globular-cluster-like dwarfs”. In: *Nature* 645.8080, pp. 327–331. DOI: [10.1038/s41586-025-09494-x](https://doi.org/10.1038/s41586-025-09494-x). arXiv: [2509.09582](https://arxiv.org/abs/2509.09582) [astro-ph.GA] Cited. 4 times.
- [1] Rey, Martin P., Taylor, Ethan et al. Aug. 2025. “EDGE: the emergence of dwarf galaxy scaling relations from cosmological radiation-hydrodynamics simulations”. In: *Monthly Notices of the Royal Astronomical Society* 541.2, pp. 1195–1217. DOI: [10.1093/mnras/staf1058](https://doi.org/10.1093/mnras/staf1058). arXiv: [2503.03813](https://arxiv.org/abs/2503.03813) [astro-ph.GA] Cited. 19 times.
- [1] Collins, Michelle L. M., [...], and Taylor, Ethan. July 2025. *The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?* HST Proposal. Cycle 33, ID. #18020.
- [1] Gray, Emily I., [...], Taylor, Ethan, et al. May 2025. “EDGE: a new model for nuclear star cluster formation in dwarf galaxies”. In: *Monthly Notices of the Royal Astronomical Society* 539.2, pp. 1167–1179. DOI: [10.1093/mnras/staf521](https://doi.org/10.1093/mnras/staf521). arXiv: [2405.19286](https://arxiv.org/abs/2405.19286) [astro-ph.GA] Cited. 21 times.
- [1] Muni, Claudia, [...], Taylor, Ethan, et al. Jan. 2025. “EDGE: dark matter core creation depends on the timing of star formation”. In: *Monthly Notices of the Royal Astronomical Society* 536.1, pp. 314–323. DOI: [10.1093/mnras/stae2748](https://doi.org/10.1093/mnras/stae2748). arXiv: [2407.14579](https://arxiv.org/abs/2407.14579) [astro-ph.GA] Cited. 17 times.
- [1] Kim, Stacy Y., [...], Taylor, Ethan, et al. Aug. 2024. “EDGE: Predictable Scatter in the Stellar Mass–Halo Mass Relation of Dwarf Galaxies”. In: *arXiv e-prints*, arXiv:2408.15214, arXiv:2408.15214. DOI: [10.48550/arXiv.2408.15214](https://doi.org/10.48550/arXiv.2408.15214). arXiv: [2408.15214](https://arxiv.org/abs/2408.15214) [astro-ph.GA] Cited. 23 times.
- [1] Orkney, Matthew D. A., Taylor, Ethan et al. Nov. 2023. “EDGE: the shape of dark matter haloes in the faintest galaxies”. In: *Monthly Notices of the Royal Astronomical Society* 525.3, pp. 3516–3532. DOI: [10.1093/mnras/stad2516](https://doi.org/10.1093/mnras/stad2516). arXiv: [2302.12818](https://arxiv.org/abs/2302.12818) [astro-ph.GA] Cited. 18 times.
- [1] Orkney, Matthew D. A., [...], Taylor, Ethan, et al. Sept. 2022. “EDGE: the puzzling ellipticity of Eridanus II’s star cluster and its implications for dark matter at the heart of an ultra-faint dwarf”. In: *Monthly Notices of the Royal Astronomical Society* 515.1, pp. 185–200. DOI: [10.1093/mnras/stac1755](https://doi.org/10.1093/mnras/stac1755). arXiv: [2201.13434](https://arxiv.org/abs/2201.13434) [astro-ph.GA] Cited. 10 times.