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# Luke Conaboy

## Employment

- 2023–present Research Fellow, University of Nottingham, Nottingham, UK  
Advisor: Prof James Bolton
- 2022–2023 Research Associate, University of Nottingham, Nottingham, UK  
Advisor: Dr Emma Chapman

## Education

- 2018–2022 PhD Astronomy, University of Sussex, Brighton, UK  
Supervisor: Prof Ilian Iliev  
Thesis: Simulations of structure formation and feedback at high redshift
- 2014–2018 MSci Physics with Astronomy, University of Nottingham, Nottingham, UK  
Degree classification: First

## Publications

### *First author*

- 2025 *The connection between high-redshift galaxies and Lyman  $\alpha$  transmission in the Sherwood-Relics simulations of patchy reionisation*, **Conaboy**, Bolton, Keating, Haehnelt, Kulkarni, Puchwein, MNRAS 539(3)
- 2023 *Relative baryon-dark matter velocities in cosmological zoom simulations*, **Conaboy**, Iliev, Fialkov, Dixon, Sullivan, MNRAS 525(4)

### *Latter author*

- 2025 *How probable is the Lyman- $\alpha$  damping wing in the spectrum of the redshift  $z = 5.9896$  quasar ULAS J0148+0600?*, Sawyer, Bolton, Becker, **Conaboy**, Haehnelt, Keating, Kulkarni, Puchwein, MNRAS 539(3)
- 2024 *Reproducibility of machine learning analyses of 21 cm reionization maps*, Sooknunan, Chapman, **Conaboy**, Mortlock, and Pritchard  
arXiv e-prints
- The Thermal Sunyaev-Zel'dovich Effect from the Epoch of Reionization*, Iliev, Hosein, Chluba, **Conaboy**, Attard, Mondal, Ahn, Gottlöber, Lewis, Ocvirk, Park, Shapiro, Sorce, and Yepes  
MNRAS 540(2)

*Dust-UV offsets in high-redshift galaxies in the Cosmic Dawn III simulation*, Ocvirk, Lewis, **Conaboy**, Dubois, Bethermin, Sorce, Aubert, Shapiro, Dawoodbhoy, Lee, Teyssier, Yepes, Gottlöber, Iliev, Ahn, and Park  
arXiv e-prints (in review)

*The Lyman-limit photon mean free path at the end of late reionization in the Sherwood-Relics simulations*, Feron, **Conaboy**, Bolton, Chapman, Haehnelt, Keating, Kulkarni, Puchwein, MNRAS 532(2)

2022 *The short ionizing photon mean free path at  $z=6$  in Cosmic Dawn III, a new fully-coupled radiation-hydrodynamical simulation of the Epoch of Reionization*, Lewis, Ocvirk, Sorce, Aubert, **Conaboy**, Shapiro, Dawoodbhoy, Teyssier, Yepes, Gottlöber, Ahn, Iliev, Th  lie, MNRAS 516(3)

## Conference proceedings

2022 *The Reionisation of the Local Universe in the Hestia Suite*, John von Neumann Institute for Computing Symposium, **Conaboy**, Iliev, Libeskind

## Supervision

2022-present Assistant supervisor to a PhD student, University of Nottingham

## Talks

Oct 2025 KMM Discussion Meeting, NAOJ, Tokyo  
Sep 2025 Kaba Kada EoR Meeting, Port Douglas, Cairns  
Apr 2025 Cake Talk, DAWN, Copenhagen  
Feb 2024 Astronomy Colloquium, ICC, Durham  
Nov 2023 TIFR State of the Universe, TIFR, Mumbai (online)  
Nov 2023 Cambridge Galaxies Discussion Group, KICC, Cambridge  
Jun 2023 CLUES Meeting 2023, LMU CAS, Munich  
Jul 2022 *Hestia in the EoR*, CLUES Meeting 2022, Madrid  
Sep 2021 *Baryon drift effects at high-redshift*, RAMSES User Meeting 2021, online  
Dec 2020 *Baryon drift effects on small-scale structure*, PhD in a Pandemic 2020, online  
Nov 2020 *Local Group zoom simulations and baryon drift*, CLUES Mid-term Meeting, online  
Oct 2020 *Baryon drift effects on small-scale structure*, Third Global 21cm Meeting, online  
Jan 2020 *Cosmological reionisation*, RAS Specialist Meeting, London, UK

## Grants

2022 Co-PI (PI: Dr Noam I. Libeskind, PC: Prof Ilan T. Iliev) JUWELS (J  lich, Germany) computing time (13.3M core-h, applied) (**11M core-h, granted**)

## Awards

2022 Physics Finalist, STEM for Britain

## Conferences and workshops

### Organising

- 2025 EAS 2025 SS22 – Modelling the first billion years, *SOC*, Cork, Ireland  
Selecting talks
- 2022– University of Nottingham Astronomy Seminar Series, *Organiser*, Nottingham, UK  
Inviting and hosting guest speakers
- 2020 SAZERAC 2020, *LOC*, online  
Moderating discussion

## Teaching

- Spring 2020 Foundation Mathematics B, *University of Sussex*  
Assisting with workshops, marking.
- Autumn 2019 Scientific Computing, *University of Sussex*  
Assisting with workshops, marking.
- Autumn 2019 Financial Computing with MATLAB, *University of Sussex*  
Assisting with workshops, marking.

## Computing skills

A list of languages or packages that I use regularly, or have experience using

- Languages Python (numpy, scipy, matplotlib, mpi4py, yt), Fortran, Bash, MPI, Matlab, C/C++
- Codes ramses, music, camb, gadget
- Other Linux, High performance computing,  $\text{\LaTeX}$