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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 α transmission in the Sherwood-Relics simulations of patchy reionisation*, **Conaboy**, Bolton, Keating, Haehnelt, Kulkarni, Puchwein, arXiv e-prints (in review)

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-α damping wing in the spectrum of the redshift $z = 5.9896$ quasar ULAS J0148+0600?*, Sawyer, Bolton, Becker, **Conaboy**, Haehnelt, Keating, Kulkarni, Puchwein, arXiv e-prints (in review)

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
arXiv e-prints (in review)

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, Thélie, 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

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 Ilian T. Iliev) JUWELS (Jülich, 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
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`) (7 years/experienced), Fortran (3 years), Bash (3 years), MPI (3 years), Matlab (3 years), C/C++ (1 year)
Codes	`ramses`, `music`, `camb`, `gadget`
Other	Linux, High performance computing, LaTeX