

Dr. James W. Trayford

Curriculum Vitae

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Introduction

I am a motivated researcher in the field of *Galaxy Formation* and *Computational Cosmology*, passionate about innovation in data methods and interfaces. I have been fortunate to work on the groundbreaking *EAGLE* cosmological simulation project, and with a wide range of academics, attaining a strong publication impact record deemed exceptional for my time in the field. Working on these flagship simulations has given me detailed experience in the areas of *High Performance Computing* and *Data Science*, running my code for millions of CPU hours on some of the highest specification machines in Europe. With my independent *Dennis Sciama* fellowship, I have embraced new roles directing and supervising research, particularly for burgeoning *machine learning* applications. This period has been a time of intensive development for the upcoming *Colibre* simulations which are due to release in the summer, along with a number of anticipated publications; the culmination of over 7 years work. In recent years I have independently embarked on a new project pioneering new data methods, particularly "sonification" of data using my open source STRAUSS code ([link](#)), winning an inaugural STFC grant to develop this further. As well as seeing great insight & discovery potential, I'm motivated to improve inclusivity in science, particularly to allow visually impaired people and those with non-visual sensory preferences to interface with astronomy through sonification, touch and general multi-sensory means. In my free time I am a keen musician, and enjoy playing football, running and bobbing around in the Solent.

Research Positions

- Mar. 2023 – **Institute for Cosmology & Gravitation, University of Portsmouth**,
PI for STFC project ST/X004651/1 *Ear to the Sky: Intuitive Exploration & Discovery in Astronomical Data using Sonification*.
- 2020 – **Institute for Cosmology & Gravitation, University of Portsmouth**,
Dennis Sciama Senior Research Fellow.
- 2017 – 2020 **Leiden Observatory, Leiden University**,
Postdoctoral Research Associate with Joop Schaye in *Theoretical Galaxy Formation*.

Education

- 2013 – 2017 **Institute for Computational Cosmology, Durham University**,
PhD in Astrophysics: "*Forward modelling of Simulated galaxies*" (2017).
- 2009 – 2013 **Durham University**,
First Class Honours (MPhys), thesis: "*The origin of the Hubble sequence of galaxies*".

Awards & Scholarship

- 2025 Sonification Awards:
 - *Sonification of Hyperspectral data in the NASA-MAST archive tool: Jdaviz*: **James Trayford**, C. M. Harrison, S. Youles, N. Bonne, R.D. Shepherd, J. Averbukh, C. Pacifici.
 - *Warming Stripes Sonification*: Chris Harrison, **James Trayford**, and Rose Shepherd.
 - *Sonification of a Growing Black Hole*: Rose Shepherd, Chris Harrison and **James Trayford**.
 - *The Sound of Decoherence*: Robson Christie, **James Trayford**.
- 2024 University of Newcastle *Open Research Award*, for "Audio Universe"
- 2022 STFC *Early Stage Research and Development* award valued at £600,000
- 2021 RAS Outreach Grant award for *Hearing a Virtual Universe*
- 2019 Supervised *Jan Kijne* prize winning 'PRE' project
- 2014 North Holland Research Prize
- 2013–2017 CHARM Studentship (*BELSPO project P7/o8*), PhD funding for 4 years.

Jun. 2013 Representing Physics in the Durham *Rising Stars Research Symposium*

Authored Paper Summary

As of writing: 55 refereed papers (9 as first author) *h*-index: 35, *m*-index: 3.2, Citation count: 8,821

ORCID: [0000-0003-1530-1634](https://orcid.org/0000-0003-1530-1634) (also see full publication list appended)

Teaching & Academic responsibilities

- 2025 Leading NAM session: *Unseen Astronomy: Multisensory approaches for research, communication and education*
- 2022–2025 Covering *Galaxies* lectures from the second year *Universe* module
- 2018–2023 Supervising Master student projects
 - ‘*Hearing a Galaxy’s light: Inspecting spectra with sound*’ - M. Kavanagh-Blatt (2022)
 - ‘*Jellyfish Galaxies in the EAGLE and HYDRANGEA simulations*’ - R. Losacco (2020)
 - ‘*From galaxy photometry to star formation using deep learning*’ - G. Stefánsson (2020)
 - ‘*From Galaxies Spectra to Stellar Mass using Neural Networks*’ - E. van Weenen (2019)
 - ‘*Using EAGLE simulations to explore hybrid variations in the IMF*’ - A. Aramburo-García (2019)
- 2021–2023 Running BSc dissertation project - *Hearing a Galaxy’s Light*
- 2020–2021 Running BSc dissertation project - *Machine Learning in a Virtual Universe*
 - 2021 Co-organising EAS2021 special session SS23: The main sequence of star-forming galaxies
 - 2021 Contributing 3 hours of lectures to PhD course *Galaxy Evolution*
- 2021–2022 Acting *Postdoc Representative* at the ICG
- 2021–2022 Establishing and Running the *Galaxy formation Journal Club*
- 2020–2022 Chairing the *Monday Lunch Talk* series at the ICG, Portsmouth
- 2019–2020 Co-organising *Lorentz Center* workshop: ‘*Dynamical Reconstruction of Galaxies*’
- 2016–2017 Co-supervising of Level 4 Masters Project student
- 2014–2016 Level 1 Introduction to Astronomy; weekly problems marking
 - 2014 Level 2 Laboratory Project: Sunspots; demonstrating and supervising observations
- 2013–2014 Level 2 Computing Workshop demonstrator, and project marking

Journal Referee

From Jul. 2015 Refereed over 20 papers for publication (*MNRAS*, *JOSS*, *RASTI*, *Nature Astronomy*).

External Talks (Conferences & Visits)

- Apr. 2025 **COLIBRE pre-publication meeting**, Leiden, The Netherlands (online).
- Nov. 2024 **Space Telescope Science Institute: Seminar**, STScI, Baltimore, US.
- Nov. 2024 **Visiting Seminar: STRAUSS**, Harvard CfA, Boston, US.
- Nov. 2024 **A Universe of Sound: Astrophysical Data Sonification**, Harvard CfA, Boston, US.
- Sep. 2024 **Richard Bower Memorial Workshop: Invited talk**, Durham University, UK.
- Sep. 2024 **SWIFTcon 2024: COLIBRE Dust Physics**, Leiden, The Netherlands (online).
- Jul. 2024 **NAM 2024: “DivAst” contributed talk**, University of Hull, UK.
- Jul. 2024 **NAM 2024: “BeyAst” contributed talk**, University of Hull, UK.
- Jun. 2024 **Invited Colloquium on Sonification**, University of Oxford, UK.
- Apr. 2024 **.Astronomy 13: Contributed Workshop**, ESAC, Madrid, Spain.
- Feb. 2024 **UN Zero Project Conference: Fireside Chat & Exhibition**, UN Building, Vienna.
- Feb. 2024 **Building Galaxies From Scratch: Contributed talk**, University of Vienna, Austria.
- Nov. 2023 **Third Workshop on Astronomy for Inclusion**, Montevideo, Uruguay (online).
- Nov. 2023 **Third Workshop on Astronomy for Inclusion**, Montevideo, Uruguay (online).
- Jul. 2023 **SS39 Dust lifecycle: from stars to the ISM of galaxies**, EAS meeting, Kraków.
- Jul. 2023 **SS9 Sci-art: communicating science through art**, EAS meeting, Kraków.
- Jun. 2023 **ICAD 2023 Sonification for the Masses**, Norrköpping.
- Jun. 2023 **Waves and Instabilities in the Solar Atmosphere**, Norrköpping.
- Dec. 2022 **The Audible Universe**, Leiden.
- Jul. 2022 **VIRGO meeting**, Garching (online).
- Dec. 2021 **Invited Seminar**, University of Sussex.
- Sep. 2021 **The Audible Universe**, Leiden.
- Sep. 2020 **The Rise of Metals and Dust in Galaxies through Cosmic Time**, Marseille (online).

Feb. 2020 **Dynamical Reconstruction of Galaxies**, Leiden.
 Nov. 2019 **SWIFT users meeting**, ICC, Durham University.
 Mar. 2019 **LEGA-C Collaboration meeting**, University of Ghent.
 Dec. 2018 **Virgo Consortium Meeting**, Leiden Observatory, Leiden.
 Mar. 2018 **MUSE busy week**, Volendam.
 Dec. 2017 **Virgo Consortium Meeting**, MPA, Garching.
 Dec. 2016 **Virgo Consortium Meeting**, Durham University.
 Nov. 2016 **SKIRT days - meeting and workshop**, University of Ghent, Belgium.
 Jun. 2016 **Invited Seminar**, Leiden University, The Netherlands.
 Mar. 2016 **National Astronomers Meeting**, University of Nottingham, UK.
 Jan. 2016 **DEX XII**, Durham University, UK.
 Dec. 2015 **Virgo Consortium Meeting**, Leiden University, The Netherlands.
 Sep. 2015 **HPC workshop**, Forschungszentrum, Jülich, Germany.
 Jan. 2015 **Invited Seminar, Observing EAGLE**, University of Ghent, Belgium.
 Dec. 2014 **Virgo Consortium Meeting**, Max Planck Institute, Munich.
 Jun. 2014 **SKIRT days - meeting and workshop**, Oudenaarde, Belgium.
 May. 2014 **CHARM meeting**, University of Ghent.
 Dec. 2013 **Virgo Consortium Meeting**, Leiden University, The Netherlands.

Research, Innovation & Collaborations

I'm most motivated when working with a diversity of subjects and groups of people. I've been involved in a number of RI activities with international and interdisciplinary collaboration, most with a Data Science link. A few highlights:

- 2024-2025 **Jdaviz Sonification integration**,
Working with development team of STScI-NASA tool, incorporating strauss sonification for hyperspectral data.
- 2024-2025 **DigiStar Collaboration**,
Collaborating with the premiere provider of planetarium software to incorporate strauss as a sonification engine (led by Dr Chris Harrison).
- 2022-2025 **GB Row Project**,
Analysis and data visualisation for the GB Row data, collected by teams of rowers circumnavigating Great Britain.
- 2023 **UKSA Mission Incubator**,
Building a costing model and participating in a pilot mission design study.
- 2025 **GBH News Boston sonification collaboration**,
Designing sonification for upcoming podcast on the "Fiscal Cliff" hitting US universities..
- 2024-2025 **Artistic Collaborations**,
working with artists to develop multimedia exhibitions, such as *Infinity in our Hands* (Kristine Diekman, Liz Waugh McManus, Lisa Mansfield, Nic Bonne).

Outreach & Public Engagement

Outreach and public engagement is a key pillar of a lot of my work, particularly in designing and building exhibits anyone can interact with. For a few highlights:

- 2022-2025 **Annual Stargazing at Portsmouth Historic Dockyard**,
running *Audio Universe VR* and *SciLights: Stellar Evolution* exhibits.
- 2024 **Gravitational Wave Sky**,
running *Audio Universe VR* and *Multisensory immersive video, experiencing the O3 set of LIGO gravitational wave detections*.
- 2024 **ZeroCon UN accessibility conference**,
Exhibiting *Audio Universe VR*.

- Dec 2020- **Audio Universe, *Tour of the Solar System*.**
An ongoing collaborative project aimed at making astronomy accessible for visually impaired people ([link](#)). Premier show in Newcastle & Winchester, with a [publication](#) and [BBC](#) coverage. More recently, we have made a [cultural adaptation for Caribbean audiences](#), collaborating with Trinidadian scientists and musicians.
- Jun. 2016-2019 **Galaxy Makers Exhibit & VR Movie, RAS, London & Observatory, Leiden.**
Part of the core team developing virtual reality tour of the *EAGLE* universe (audio and visuals).
- Feb. & Mar. 2016 **Touring the Electro-Magnetic Spectrum**, Designed outreach exhibit.
Exhibited at the *Space Day* schools event in Feb. and the *Schools Science Festival* in March.
- Nov. 2015 **The World Machine, Lumiere Festival 2015**, Durham, UK.
Developer for Cathedral projection, centerpiece of event visited by > 200k people over 3 days
- Jan. 2015 **Reddit AMA: The *EAGLE* projects**, Online Q&A.
- Apr. 2015 **Schools Science Festival**, Demonstrator.
- Oct. '13 & '15 **Celebrate Science**, Exhibitor.
- Jun. 2013 **Royal Astronomical Society Summer Exhibition**, Exhibitor.

Programming Experience

Strong Python, UNIX, SQL, \LaTeX
Moderate C++, IDL, R

References

Former Prof. Joop Schaye, P.O. Box 9513, 2300 RA Leiden, The Netherlands
Supervisor ✉ schaye@strw.leidenuniv.nl
Collaborator Dr Chris Harrison, Newcastle University, Newcastle upon Tyne, NE1 7RU, UK
✉ christopher.harrison@newcastle.ac.uk
Dept. Head Prof. David Bacon, ICG, Dennis Sciama Building, Burnaby Road, PO1 3FX Portsmouth
✉ david.bacon@port.ac.uk

Authored Papers

First Author

- 1) Apr. 2025 **STRAUSS: Sonification Tools & Resources for Analysis Using Sound Synthesis**, [Trayford, J. W.](#); Youles, S., Harrison, C., Shepherd, R., & Bonne, N., Submitted to Journal of Open Source Software, arXiv:2504.01660.
- 2) Jun. 2023 **Introducing STRAUSS: A flexible sonification Python package**, [Trayford, J. W.](#) & Harrison, C. M., The 28th International Conference on Auditory Display (ICAD 2023), arXiv:2311.16847.
- 3) Jan. 2023 **Inspecting spectra with sound: proof-of-concept and extension to datacubes**, [Trayford, J. W.](#); Harrison, C. M. and Hinz, R. C. and Kavanagh Blatt, M. and Dougherty, S. and Girdhar, A., RAS Techniques & Instruments (RASTI), Volume 2, Issue 1, p.387-392.
- 4) Jan. 2020 **Fade to grey: systematic variation of galaxy attenuation curves with galaxy properties in EAGLE**, [Trayford, J. W.](#); Lagos, Claudia del P.; Robotham, Aaron S. G.; Obreschkow, Danail, MNRAS, Volume 491, Issue 3, p.3937-3951.
- 5) Jun. 2019 **Resolved galaxy scaling relations in the EAGLE simulation: star formation, metallicity, and stellar mass on kpc scales**, [Trayford, J. W.](#); Schaye, Joop, Monthly Notices of the Royal Astronomical Society, Volume 485, Issue 4, p.5715-5732.
- 6) Jan. 2019 **The star formation rate and stellar content contributions of morphological components in the EAGLE simulations**, [Trayford, J. W.](#); Frenk, Carlos S.; Theuns, Tom; Schaye, Joop; Correa, Camila, Monthly Notices of the Royal Astronomical Society, Volume 483, Issue 1, p.744-766.
- 7) Sep. 2017 **SKIRTing the issue: optical colours and spectral indices of $z=0.1$ EAGLE galaxies with 3D dust radiative transfer**, [Trayford, J. W.](#); Camps, P.; Theuns, T.; Baes, M.; Bower, R. G.; Crain, R. A.; Gunawardhana, M. L. P.; Schaller, M.; Schaye, J.; Frenk, C. S., MNRAS, Volume 470, Issue 1, p.771-799.
- 8) Aug. 2016 **It's not easy being green: the evolution of galaxy colour in the EAGLE simulation**, [Trayford, J. W.](#); Theuns, T.; Bower, R. G.; Crain, R. A.; Lagos, C. del P.; Schaller, M.; Schaye, J., MNRAS, Volume 460, Issue 4, p.3925-3939.
- 9) Sep. 2015 **Colours and luminosities of $z = 0.1$ galaxies in the EAGLE simulation**, [Trayford, J. W.](#); Theuns, T.; Bower, R. G.; Schaye, J.; Furlong, M.; Schaller, M.; Frenk, C. S.; Crain, R. A.; Dalla Vecchia, C.; McCarthy, I. G., MNRAS, Volume 452, Issue 3, p.2879-2896.

Contributing Author¹

- 10) Jun. 2023 **iMaNGA: mock MaNGA galaxies based on IllustrisTNG and MaStar SSPs. - III . Stellar metallicity drivers in MaNGA and TNG50**, Nanni, L., Neumann, J., Thomas, D., Maraston, C., [Trayford, J. W.](#) Lovell, C. C., Law, D. R., Yan, R., & Chen, Y., MNRAS, Volume 527, Issue 3, p.6419-6438.
- 11) Jun. 2023 **iMaNGA: mock MaNGA galaxies based on IllustrisTNG and MaStar SSPs - II. The catalogue**, Nanni, Lorenza and Thomas, Daniel and [Trayford, J. W.](#) and Maraston, Claudia and Neumann, Justus and Law, David R. and Hill, Lewis and Pillepich, Annalisa and Yan, Renbin and Chen, Yanping and Lazarz, Dan, MNRAS, Volume 522, Issue 4, p.5479-5499.
- 12) Nov. 2022 **Evaluating the efficacy of sonification for signal detection in univariate, evenly sampled light curves using ASTRONIFY**, Tucker Brown, J.; Harrison, C. M.; Zanella, A.; [Trayford, J. W.](#), MNRAS, Volume 516, Issue 4, p.5674-5683.
- 13) Sep. 2022 **iMaNGA: mock MaNGA galaxies based on IllustrisTNG; MaStar SSPs - I. Construction; analysis of the mock data cubes**, Nanni, Lorenza; Thomas, Daniel; [Trayford, J. W.](#); Maraston, Claudia; Neumann, Justus; Law, David R.; Hill, Lewis; Pillepich, Annalisa; Yan, Renbin; Chen, Yanping; Lazarz, Dan, MNRAS, Volume 515, Issue 1, pp.320-338.
- 14) May 2022 **High-resolution synthetic UV-submm images for Milky Way-mass simulated galaxies from the ARTEMIS project**, Camps, Peter; Kapoor, Anand Utsav; Trcka, Ana; Font, Andreea S.; McCarthy, Ian G.; [Trayford, J. W.](#); Baes, Maarten, MNRAS, Volume 512, Issue 2, pp.2728-2749.
- 15) Apr. 2022 **First Light; Reionisation Epoch Simulations (FLARES) - III. The properties of massive dusty galaxies at cosmic dawn**, Vijayan, Aswin P.; Wilkins, Stephen M.; Lovell, Christopher C.; Thomas, Peter A.; Camps, Peter; Baes, Maarten; [Trayford, J. W.](#); Kuusisto, Jussi; Roper, William J., MNRAS, Volume 511, Issue 4, pp.4999-5017.
- 16) Apr. 2022 **Observed structural parameters of EAGLE galaxies: reconciling the mass-size relation in simulations with local observations**, de Graaff, Anna; [Trayford, J. W.](#); Franx, Marijn; Schaller, Matthieu; Schaye, Joop; van der Wel, Arjen, MNRAS, Volume 511, Issue 2, pp.2544-2564.

- 17) Apr. 2022 **Audio universe: tour of the solar system**, Harrison, C. M.; [Trayford, J. W.](#); Harrison, L.; Bonne, N., *Astronomy & Geophysics*, Volume 63, Issue 2, April 2022, Pages 2.38–2.40.
- 18) Aug. 2020 **The MAGPI survey: Science goals, design, observing strategy, early results; theoretical framework**, Foster, C.; Mendel, J. T.; Lagos, C. D. P.; Wisnioski, E.; Yuan, T.; D'Eugenio, F.; Barone, T. M.; Harborne, K. E.; Vaughan, S. P.; Schulze, F.; Remus, R. -S.; Gupta, A.; Collacchioni, F.; Khim, D. J.; Taylor, P.; Bassett, R.; Croom, S. M.; McDermid, R. M.; Poci, A.; Battisti, A. J.; Bland-Hawthorn, J.; Bellstedt, S.; Colless, M.; Davies, L. J. M.; Derkenne, C.; Driver, S.; Ferré-Mateu, A.; Fisher, D. B.; Gjergo, E.; Johnston, E. J.; Khalid, A.; Kobayashi, C.; Oh, S.; Peng, Y.; Robotham, A. S. G.; Sharda, P.; Sweet, S. M.; Taylor, E. N.; Tran, K. -V. H.; [Trayford, J. W.](#); van de Sande, J.; Yi, S. K.; Zanisi, L., *Publications of the Astronomical Society of Australia*, Volume 38, article id. eo31.
- 19) Aug. 2020 **Massive low-surface-brightness galaxies in the EAGLE simulation**, Kulier, Andrea; Galaz, Gaspar; Padilla, Nelson D.; [Trayford, J. W.](#), *MNRAS*, Volume 496, Issue 3, p.3996–4016 .
- 20) May. 2020 **Infrared luminosity functions; dust mass functions in the EAGLE simulation**, Baes, Maarten; Trčka, Ana; Camps, Peter; [Trayford, J. W.](#); Katsianis, Antonios; Marchetti, Lucia; Theuns, Tom; Vaccari, Mattia; Vandenbroucke, Bert, *MNRAS*, Volume 494, Issue 2, pp.2912–2924.
- 21) May. 2020 **Reproducing the Universe: a comparison between the EAGLE simulations; the nearby DustPedia galaxy sample**, Trčka, Ana; Baes, Maarten; Camps, Peter; Meidt, Sharon E.; [Trayford, J. W.](#); Bianchi, Simone; Casasola, Viviana; Cassarà, Letizia P.; De Looze, Ilse; De Vis, Pieter; Dobbels, Wouter; Fritz, Jacopo; Galametz, Maud; Galliano, Frédéric; Katsianis, Antonios; Madden, Suzanne C.; Mosenkov, Aleksandr V.; Nersesian, Angelos; Viaene, Sébastien; Xilouris, Emmanuel M., *MNRAS*, Volume 494, Issue 2, pp.2823–2838.
- 22) Jan. 2020 **Non-parametric morphologies of galaxies in the EAGLE simulation**, Bignone, Lucas A.; Pedrosa, Susana E.; [Trayford, J. W.](#) and Tissera, Patricia B.; Pellizza, Leonardo J., *MNRAS*, Volume 491, Issue 3, p.3624–3642.
- 23) Jan. 2020 **Feedback from supermassive black holes transforms centrals into passive galaxies by ejecting circumgalactic gas**, Oppenheimer, Benjamin D.; Davies, Jonathan J.; Crain, Robert A.; Wijers, Nastasha A.; Schaye, Joop; Werk, Jessica K.; Burchett, Joseph N.; [Trayford, J. W.](#); Horton, Ryan, *MNRAS*, Volume 491, Issue 2, p.2939–2952.
- 24) Sep. 2019 **From the far-ultraviolet to the far-infrared - galaxy emission at $0 \leq z \leq 10$ in the SHARK semi-analytic model**, Lagos, Claudia del P.; Robotham, Aaron S. G.; [Trayford, J. W.](#); Tobar, Rodrigo; Bravo, Matías; Bellstedt, Sabine; Davies, Luke J. M.; Driver, Simon P.; Elahi, Pascal J.; Obreschkow, Danail; Power, Chris, *MNRAS*, Volume 488, Issue 2, p.2440–2454.
- 25) Sep. 2019 **The nature of submillimetre and highly star-forming galaxies in the EAGLE simulation**, McAlpine, Stuart; Smail, Ian; Bower, Richard G.; Swinbank, A. M.; [Trayford, J. W.](#); Theuns, Tom; Baes, Maarten; Camps, Peter; Crain, Robert A.; Schaye, Joop, *MNRAS*, Volume 489, Issue 3, p.4196–4216.
- 26) Sep. 2019 **Linking gas and galaxies at high redshift: MUSE surveys the environments of six damped Ly α systems at $z \approx 3$** , Mackenzie, Ruari; Fumagalli, Michele; Theuns, Tom; Hatton, David J.; Garel, Thibault; Cantalupo, Sebastiano; Christensen, Lise; Fynbo, Johan P. U.; Kanekar, Nissim; Møller, Palle; O'Meara, John; Prochaska, J. Xavier; Rafelski, Marc; Shanks, Tom; [Trayford, J. W.](#), *MNRAS*, Volume 487, Issue 4, p.5070–5096.
- 27) Aug. 2019 **Quenching time-scales of galaxies in the EAGLE simulations**, Wright, Ruby J.; Lagos, Claudia del P.; Davies, Luke J. M.; Power, Chris; [Trayford, J. W.](#); Wong, O. Ivy, *MNRAS*, Volume 487, Issue 3, p.3740–3758.
- 28) Jul. 2019 **An Evolving and Mass-dependent σ_{SFR-M^*} Relation for Galaxies**, Katsianis, Antonios; Zheng, Xi-anzhong; Gonzalez, Valentino; Blanc, Guillermo; Lagos, Claudia del P.; Davies, Luke J. M.; Camps, Peter; Trčka, Ana; Baes, Maarten; Schaye, Joop; [Trayford, J. W.](#); Theuns, Tom; Stalevski, Marko, *ApJ*, Volume 879, Issue 1, article id. 11, 17 pp. (2019).
- 29) Jun. 2019 **The dynamics and distribution of angular momentum in HiZELS star-forming galaxies at $z = 0.8-3.3$** , Gillman, S.; Swinbank, A. M.; Tiley, A. L.; Harrison, C. M.; Smail, Ian; Dudzeviciute, U.; Sharples, R. M.; Best, P. N.; Bower, R. G.; Cochrane, R.; Fisher, D.; Geach, J. E.; Glazebrook, K.; Ibar, Edo; Molina, J.; Obreschkow, D.; Schaller, M.; Sobral, D.; Sweet, S.; [Trayford, J. W.](#); Theuns, T., *MNRAS*, Volume 486, Issue 1, p.175–194.
- 30) Jun. 2019 **Identifying galaxy mergers in observations and simulations with deep learning**, Pearson, W. J.; Wang, L.; [Trayford, J. W.](#); Petrillo, C. E.; van der Tak, F. F. S., *A&A*, Volume 626, id.A49, 18 pp.
- 31) Apr. 2019 **The origin of the red-sequence galaxy population in the EAGLE simulation**, Correa, Camila A.; Schaye, Joop; [Trayford, J. W.](#), *MNRAS*, Volume 484, Issue 4, p.4401–4412.
- 32) Apr. 2019 **The cosmic spectral energy distribution in the EAGLE simulation**, Baes, Maarten; Trčka, Ana; Camps, Peter; Nersesian, Angelos; [Trayford, J. W.](#); Theuns, Tom; Dobbels, Wouter, *MNRAS*, Volume 484, Issue 3, p.4069–4082.

- 33) Apr. 2019 **Multi-wavelength de-blended Herschel view of the statistical properties of dusty star-forming galaxies across cosmic time**, Wang, L. and Pearson, W. J. and Cowley, W. and **Trayford, J. W.** and Béthermin, M. and Gruppioni, C. and Hurley, P. and Michałowski, M. J, *Astronomy & Astrophysics*, Volume 624, id.A98.
- 34) Mar. 2019 **The diverse evolutionary pathways of post-starburst galaxies**, Pawlik, M. M.; McAlpine, S.; **Trayford, J. W.**; Wild, V.; Bower, R.; Crain, R. A.; Schaller, M.; Schaye, J., *Nature Astronomy*, Volume 3, p. 440-446.
- 35) Dec. 2018 **Ring galaxies in the EAGLE hydrodynamical simulations**, Elagali, Ahmed and Lagos, Claudia D. P. and Wong, O. Ivy and Staveley-Smith, Lister and **Trayford, J. W.** and Schaller, Matthieu and Yuan, Tiantian and Abadi, Mario G., *MNRAS*, Volume 481, Issue 3, p.2951-2969.
- 36) Feb. 2018 **Quantifying the impact of mergers on the angular momentum of simulated galaxies**, Lagos, Claudia del P.; Stevens, Adam R. H.; Bower, Richard G.; Davis, Timothy A.; Contreras, Sergio; Padilla, Nelson D.; Obreschkow, Danail; Croton, Darren; **Trayford, J. W.**; Welker, Charlotte; Theuns, Tom, *MNRAS*, Volume 473, Issue 4, p.4956-4974.
- 37) Feb. 2018 **Data Release of UV to Submillimeter Broadband Fluxes for Simulated Galaxies from the EAGLE Project**, Camps, Peter; Trcka, Ana; **Trayford, J. W.**; Baes, Maarten; Theuns, Tom; Crain, Robert A.; McAlpine, Stuart; Schaller, Matthieu; Schaye, Joop, *ApJ*, Volume 234, Issue 2, article id. 20, 15 pp. (2018).
- 38) Nov. 2017 **Witnessing galaxy assembly in an extended $z \approx 3$ structure**, Fumagalli, Michele; Mackenzie, Ruari; **Trayford, J. W.**; Theuns, Tom; Cantalupo, Sebastiano; Christensen, Lise; Fynbo, Johan P. U.; Møller, Palle; O'Meara, John; Prochaska, J. Xavier; Rafelski, Marc; Shanks, Tom, *MNRAS*, Volume 470, Issue 4, p.4186-4208.
- 39) Oct 2017 **The Hydrangea simulations: galaxy formation in and around massive clusters**, Bahé, Yannick M.; Barnes, David J.; Dalla Vecchia, Claudio; Kay, Scott T.; White, Simon D. M.; McCarthy, Ian G.; Schaye, Joop; Bower, Richard G.; Crain, Robert A.; Theuns, Tom; Jenkins, Adrian; McGee, Sean L.; Schaller, Matthieu; Thomas, Peter A.; **Trayford, J. W.**, *MNRAS*, Volume 470, Issue 4, p.4186-4208.
- 40) Sep. 2017 **Small-scale galaxy clustering in the eagle simulation**, Artale, M. Celeste; Pedrosa, Susana E.; **Trayford, J. W.**; Theuns, Tom; Farrow, Daniel J.; Norberg, Peder; Zehavi, Idit; Bower, Richard G.; Schaller, Matthieu, *MNRAS*, Volume 470, Issue 2, p.1771-1787.
- 41) May 2017 **Angular momentum evolution of galaxies over the past 10 Gyr: a MUSE and KMOS dynamical survey of 400 star-forming galaxies from $z = 0.3$ to 1.7**, Swinbank, A. M.; Harrison, C. M.; **Trayford, J. W.**; Schaller, M.; Smail, Ian; Schaye, J.; Theuns, T.; Smit, R.; Alexander, D. M.; Bacon, R.; Bower, R. G.; Contini, T.; Crain, R. A.; de Breuck, C.; Decarli, R.; Epinat, B.; Fumagalli, M.; Furlong, M.; Galametz, A.; Johnson, H. L. Lagos, C.; Richard, J.; Vernet, J.; Sharples, R. M.; Sobral, D.; Stott, J. P., *MNRAS*, Volume 467, Issue 3, p.3140-3159.
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¹Please note that because I commenced my PhD after the EAGLE project started, I am not an EAGLE builder. As a result, I have no automatic right to co-authorship of any study, so have been invited to receive author credit through collaboration. I am involved in the building of the new EAGLE-XL and COLIBRE projects.