Dr Benjamin M. Giblin

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Research Career

2024–date	UKRI Stephen Hawking Research Fellow at the University of Edinburgh.
2023–2024	Weak Lensing Research Fellow at the University of Edinburgh.
2022–2023	Royal Society of Edinburgh Saltire Research Fellow at the University of Barcelona.
2019–2022	Postdoctoral Researcher at the University of Edinburgh.
2015–2019	PhD at the University of Edinburgh. *The Non-Linear Universe: the Role of Simulations, Theory & Machine Learning in Weak Lensing Cosmology*, supervised by Prof Catherine Heymans and Dr Joachim Harnois-Déraps.
2013–2015	Various Summer Research studentships at the University of Sussex, Swinburne University (Australia), and the University of St. Andrews.
2011–2015	First class Master's degree in Physics with honours in Astrophysics. The University of Birmingham.

Professional Skills

- **Affiliations:** co-lead of the DR1 cosmic shear Key Project in the Euclid Consortium. Also active in the ESO's Kilo-Degree Survey (KiDS) Collaboration. Junior Associate of the LSST:UK Consortium.
- **Machine-learning:** leading the field in the use of Gaussian process emulators and convolutional neural networks in weak lensing cosmology.
- **Non-Gaussian statistics:** developing cutting-edge higher-order statistics for improving information extraction from weak lensing data.
- **Cosmology analysis:** performing precision Bayesian inference of cosmological parameters with weak lensing observations.
- **Extended cosmologies:** skilled in numerical modelling of cosmological statistics in modified gravity.
- **Mass-mapping:** reconstructing curved and flat density maps with weak gravitational lensing.
- **Data reduction:** led the processing and quality control for the fourth KiDS data release, consisting of 1000 deg^2 of deep multi-band optical imaging.
- **Weak lensing systematics:** led the Key Project to validate the systematics-robustness of the "KiDS-1000" data set..
- **Simulations:** a key contributor to the production of suites of numerical cosmological simulations (FoRGE, cosmoSLICS).
- **Communication:** an award-winning science communicator with a proven track record of public engagement and conference presentations. Lead of the Euclid-UK social media, performed at the Edinburgh Fringe, and have a book deal with *Bloomsbury Publishing*.
- **Equity, diversity & inclusion:** Four years serving on my School's EDI committee. Established partnership between Edinburgh and `BBSTEM`, providing networking opportunities for Black undergraduates.

Prizes & Awards

2023 Recipient of the prestigious UKRI Stephen Hawking Fellowship of £447,500.
2021 Recipient of the Royal Society of Edinburgh Saltire Fellowship Award of £55,440.
Nominated for a University of Edinburgh Teaching Award.
2015 A four-year European Research Council PhD Studentship of ∼£90,000.
2014 The Universitas 21 Undergraduate Travel Bursary 2014, from the University of Birmingham.
2013 The Research Experience Bursary, and the Year 2 School Prize for Physics, from the University of Birmingham.
2012 The Year 1 School Prize for Physics, and the Universitas 21 Undergraduate Travel Bursary 2012, from the University of Birmingham. Scholarship for contributions to research in Japan, from Waseda University, Japan.
2011 Recipient of the prestigious Excellence Scholarship for Physics for £20,000, from the University of Birmingham.

Teaching Experience

2025 Supervisor to PhD student J. Bai.
Supervisor to Senior Honours student C. Zhang and E. Tannock.
2024 Supervisor to Masters student P. Zarco Villegas, and two Summer Research students, R. Shaw and B. Trotter.
2023 Supervisor to Senior Honours student, O. Lee.
2022 Supervisor to Masters student D. Fernandez.
2021 Supervisor to Masters students R. Seeburger, Senior Honours student S. Acreman, and Summer Research student L. Paquereau.
2020 Supervisor to Senior Honours student D. Dorn.
Course Lead for Introductory Astrophysics.
2015–2019 Tutor at the University of Edinburgh. First year courses: Introductory Astrophysics and Physics Laboratory. Second year courses: Modern Physics. Master's Courses: General Relativity and Cosmology.
2017 Co-supervisor to MPhys student I. Friswell.
Lecturer in *Discovering the Solar System* at the Office of Lifelong Learning.
Co-supervisor to Summer Research student D. Salmanzadeh.
Lecturer in *Discovering the Solar System* at the Office of Lifelong Learning.
Private tutor of undergraduate physics.
2016 Co-supervisor to Summer Research student A. Ruiz Blanco.
Private tutor of undergraduate physics and National 5 mathematics.

Conferences & Talks

2026 Invited seminar speaker, University of South Africa.
New Frontiers in Cosmology, A Coruña. **Talk**.
Euclid Consortium Meeting, Barcelona.
Euclid:UK & LSST:UK Meeting, Manchester. **Session lead**.
2025 *Beyond-two-point Statistics Meet Survey Systematics*, Kavli IPMU, Japan. **Talk**.
KiDS Busy Week, Newcastle. **Talk**.
Understanding Cosmological Observations, Benasque, Spain. **Talk & session lead**.
Euclid Consortium Meeting, Leiden.
Euclid DR1 Analysis Meeting, Royal Holloway, London.
2024 Invited seminar speaker, Université Paris Saclay.
Invited seminar speaker, UCL.
Stephen Hawking Fellowship Meeting, The Royal Institution, London. **Talk**.

Euclid Weak Lensing Meeting, Innsbruck. **Talk**.
Durham-Edinburgh Extragalactic Workshop, Durham. **Talk**.
Euclid Consortium Meeting, Rome.
CosmoVerse conference, Krakow. **Talk**.
National Astronomy Meeting, Hull. **Talk**.

2023 Invited seminar speaker, German Centre for Cosmological Lensing.
Invited seminar speaker, University of Barcelona.
Euclid Consortium Meeting, Copenhagen.
Launch of the Euclid Satellite, Florida.
Euclid UK Meeting, London.
Machine Learning on Astronomical Surveys, Paris. **Talk**.

2022 Invited seminar speaker, University of Portsmouth.
Tensions in Cosmology, Corfu. **Talk**.
31st Texas Symposium on Relativistic Astrophysics, Prague. **Talk.**
Annual Meeting of the European Astronomical Society, Valencia. **Poster**.

2021 Invited seminar speaker, Max-Planck Institute for extraterrestrial Physics, Garching.
Durham-Edinburgh Extragalactic Workshop, Online. **Talk and Local Organising Committee**.
The National Astronomy Meeting, Online. **Session organiser**.
Cosmology from Home, Online. **Talk**.

2020 *DESC 2020 Virtual Meeting*, Online. **Talk and poster**.
KiDS Collaboration Meeting, Online. **Talk**.
Michigan Cosmology Summer School, Online.

2019 *30th Texas Symposium on Relativistic Astrophysics*, Portsmouth. **Talk**.
CoSyne: Cosmological Synergies in the upcoming decade, Paris, **Talk.**
The National Astronomy Meeting, Lancaster. **Talk**.
Artificial Intelligence Methods in Cosmology, Ascona, Switzerland. **Talk**.

2018 *LSST-DESC Sprint Week*, Edinburgh. **Local Organising Committee**.
Consistency of Cosmological Datasets, Cambridge. **Invited talk**.
Statistical Challenges in the Era of LSST, Oxford. **Talk**.
KiDS Collaboration Meeting, Edinburgh. **Local Organising Committee and talk**.
Gravity Beyond Einstein: Quo Vadimus?, Edinburgh. **Local Organising Committee**.
Durham-Edinburgh Extragalactic Workshop, Durham. **Prize-winning talk**.

2017 *Essential Cosmology for the Next Generation*, Punta Mita, Mexico. **Prize-winning talk**.
Dark Universe, LMU Munich, Germany. **Talk**.
KiDS Collaboration Meeting II, Leiden, NL. **Talk**.
National Astronomy Meeting, Hull. **Talk**.
KiDS Collaboration Meeting I, Leiden, NL. **Talk**.
Durham-Edinburgh Extragalactic Workshop, Edinburgh. **Talk**.

2016 *GravLens*, Leiden, NL. **Talk**.
Challenges in 21st Century Cosmology, Chania, Crete. **Poster**.
KiDS-GAMA-VIKING Consortium, Edinburgh. **Local Organising Committee and talk**.
KiDS Collaboration Meeting, Leiden, NL. **Talk**.
Durham-Edinburgh Extragalactic Workshop, Durham. **Talk**.

2014 *Universitas 21 Summer School*, UNSW, Australia. **Prize-winning talk**.

2012 *The Universitas 21 Undergraduate Research Conference*, Waseda University, Japan. **Prize-winning poster**.

Science Communication and Public Engagement

2026 Published `review` of the outreach book '*Radio Universe*' (E. Chapman) in *Physics World*.
"*The Haunted Science of Dark Matter*": Talk at *Astronomy on Tap*.
My '*Humans of Euclid*' project installed as a dedicated exhibition in Dynamic Earth museum, Edinburgh (reached ∼20,000 in 2 weeks).
Represented Euclid at the Royal Society's *Summer Science Exhibiton*.
Featured expert on BBC Radio 2, 5 Live, and BBC Scotland for the 2026 solar eclipse.
Appeared in Dynamic Earth's '*Meet the Scientist*' series (reached 700 participants).
Invited to appear on the *Naked Scientist* podcast (1.1M subscribers).

2025 Signed deal with *Bloomsbury Publishing* to write an outreach book about cosmology. *Dark Frontiers* is scheduled for publication in 2029.
Featured expert on STV discussing the 'planetary parade'.
My observational maps on the Dark Matter *Wikipedia* page break 10 million views.

2024 *"Albert Einstein Ruined My Life!"*: sell-out science-themed stand-up show at Edinburgh Fringe.
Featured expert on BBC Scotland News for 2024 solar eclipse.
Founded the Euclid-UK social media and started the `Humans-of-Euclid` outreach project to highlight the personal stories of Euclid scientists.
Represented the *Scottish Youth Telescope Network* charity at the World Science Fiction Convention.

2023 Published `article` in newspaper *The National* discussing cosmological tensions.

2022 *"Shining Light in the Dark"*: invited speaker for the University of the Third Age, Berkshire.

2021 Invited speaker at a careers day for the Salem-Kolleg non-profit educational institute (Germany).

2020 Produced dark matter maps for the Kilo-Degree Survey press release, receiving international news coverage.
YouTube Cosmology Talk Series: invited speaker.

2019 *"The Dark Side of Research"*: science-themed stand-up show at the Edinburgh Fringe.
"The Dark Side of the Universe": invited speaker to the Airdrie Astronomical Association.
"In The Steps Of Apollo": scientific consultant to this production commemorating the Apollo 11 mission at *We The Curious*, Bristol.

2018 Interviewed for the cover-story of *All About Space* magazine, issue 85.
"Why The Dark Matters": invited talk for the Institute of Physics Public Lecture Series, Glasgow.
"Einstein's Astonishing Legacy": invited talk at the Royal Observatory of Edinburgh open-day.
Published `article` in newspaper *The National* discussing Scottish astronomy.
"The 95% Unknown": Sold-out talk for the international Pint of Science Festival, Edinburgh.
"Making (Gravitational) Waves": Sold-out talk for Astronomy On Tap, Edinburgh.
Performed science demos at the National Museum of Scotland, Edinburgh.
"The History Of Astronomy": part of the Winter Talk lecture series at the Royal Observatory of Edinburgh.

2017 Produced the mass map images for a press-release from the Kilo-Degree Survey which received international news coverage.
"The Past, Present And Future Of Gravitational Waves": part of the Winter Talk lecture series at the Royal Observatory of Edinburgh.

2016 *"KiDS vs Planck: A Tale Of Two Collaborations"*: invited talk for the University of Edinburgh Physics Society.
"The Deserts And Jungles Of The Universe Through The Cosmic Lens": part of the Winter Talk lecture series at the Royal Observatory of Edinburgh.
Showcased a self-constructed gravitational wave demostration at Dynamic Earth, Edinburgh.

References

1. Prof Hendrik Hildebrandt (Collaborator).
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2. Dr Joachim Harnois-Déraps (Collaborator).
   Newcastle University, Newcastle upon Tyne, NE1 7RU.
   E-mail: joachim.harnois-deraps@ncl.ac.uk

3. Prof Catherine Heymans (Former PhD Supervisor).
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