



Dr Charlotte Götz and Dr Helen Williams from Northumbria University

Sep 16, 2025 10:39 BST

Northumbria researchers announced as winners of Future Leaders Fellowships

Two talented researchers from Northumbria University have been awarded a share of £120 million from UK Research and Innovation's (UKRI) flagship Future Leaders Fellowship fund to help advance their work in space physics and book history.

The Future Leaders Fellowship scheme supports early-career researchers and innovators with outstanding potential in UK universities and organisations. The fellowships provide funding for up to seven years to develop their most

exciting ideas and lead the UK's research and innovation landscape.

<u>Dr Charlotte Götz</u> and <u>Dr Helen Williams</u> have each been awarded more than £1.2 million to further their own research and their projects are among 77 successful applications to receive funding.

Dr Götz, Assistant Professor in Space Physics, will use her fellowship to study how comets interact with the solar wind, and what this tells us about the formation of our solar system. She is preparing to support the <u>European Space Agency's (ESA) Comet Interceptor mission</u> – the only mission planned to visit a comet in the next 25 years.

Scheduled to launch in 2029, the mission represents a unique opportunity to study a 'dynamically new' comet – one that has never entered the inner solar system before. Unlike previous missions that had predetermined targets, this spacecraft will wait in space until astronomers identify a suitable pristine comet, then intercept it for a 24-hour flyby.

"This really is a one-shot, once-in-a-lifetime mission," said Dr Götz. "By the time this mission launches, we will have been planning it for over 10 years, and the spacecraft could spend up to five years in space waiting for the perfect target."

What makes Comet Interceptor particularly groundbreaking is its ability to split into three separate spacecraft before reaching the comet. The mother spacecraft will maintain a safe distance of 1,000 kilometres, while two smaller probes – one built by the Japanese space agency and one by ESA – will approach as close as 300-500 kilometres.

"This three-point measurement is gold standard for plasma physics," explained Dr Götz, who chairs the mission's Far Environment Working Group. "Plasma is only really measurable well at the point of measurement. Having three spacecraft will allow us to understand how the comet's environment changes across different locations."

The Comet Interceptor mission exemplifies international collaboration in space science. While led by ESA, it involves teams from across Europe and Japan. Dr Götz previously worked at Technische Universität Braunschweig in Germany and ESA in the Netherlands and now brings this expertise to

Northumbria University, which joined the mission consortium in 2022.

A key innovation of Dr Götz's fellowship is combining the spacecraft measurements with ground-based telescope observations. For the first time since the 1980s, researchers will use specialised filters on Earth-based telescopes to track ions in comet tails while simultaneously measuring the comet's immediate environment with spacecraft instruments.

Dr Götz's work builds on the groundbreaking Rosetta mission, which she contributed to during her PhD. Rosetta spent two years studying comet 67P/Churyumov-Gerasimenko up close, providing unprecedented insights into comet composition and behaviour. However, that comet wasn't suitable for ground-based telescope observations, limiting the ability to connect space-based and Earth-based measurements.

"We have fantastic images of comets with their lovely bright tails, but the dynamics are poorly understood because we haven't had simultaneous spacecraft measurements and telescope observations," said Dr Götz. "This fellowship will enable us to change that."

For Dr Helen Williams, Associate Professor of English Literature and Co-Director of Cultural Partnerships at Northumbria University, her fellowship will allow her to work with international partners and alongside two postdoctoral scholars to recover and share the stories of women who have shaped book production across the world.

"The aim is essentially to establish a new subdiscipline of global women's book history," explained Dr Williams. "Bringing together print and manuscript studies and cross-examining world regions on a scale not previously seen before."

Designed with industry partners including the ink, paper, printing, and publishing trades, libraries and archives – as well as project partners, the British Library and the UNESCO world heritage site, the Plantin-Moretus Printing Museum in Belgium – the vision of the fellowship is to achieve the shared goal of improving the visibility of women in book production, past and present.

The <u>Plantin-Moretus Printing Museum</u> is the original residence and workshop

of the Plantin and Moretus publishing dynasty which dates back to the 16 thcentury and, by hosting a project conference, will be integral to helping ensure the research reaches public as well as academic audiences. The fellowship will focus on activities in Europe, the Islamic World and East Asia during the timespan of 1600 to 1900 – a key moment in the hand-production of books when women were involved in everything from printing and sewing volumes, to holding calligraphy licences, managing apprentices, stock and premises.

"Women's labour has always underpinned the production of books, though they are not always credited with their work and leadership," said Dr Williams. "Tracing these stories takes time, visiting research archives, handling records and piecing together experiences. This fellowship is a unique opportunity to bring together the right expertise to achieve that."

Dr Williams' expertise in book history has previously been recognised by a British Academy Innovation Fellowship held in collaboration with the Worshipful Company of Stationers, exploring women's book history and gender inclusion in UK archives and libraries, and a British Academy Rising Star Public Engagement Award.

Her interest in women's work and the making of books follows on from her study of the production of the experimental novel, *The Life and Opinions of Tristram Shandy, Gentleman* (1759-67), by Laurence Sterne, the first instalment of which was printed by York typographer, Ann Ward. Sterne's novel was the subject of Dr Williams' PhD, her first monograph, *Laurence Sterne and the Eighteenth Century Book* (2021), published by Cambridge University Press, and an Arts and Humanities Research Council-funded research grant co-led with Dr Mary Newbould and Cambridge University Library producing an <u>open-access dataset of rare books</u> by or inspired by Sterne. She has since written two forthcoming books on women in the book trades in the UK and Ireland and co-edited the international correspondence of author John Cleland for Cambridge University Press (2024).

A children's book researched and written during her fellowship, provisionally titled *The Women Behind the World's Books*, is another way Dr Williams hopes to share the research findings from her fellowship with a wider audience.

"In the worldwide printing, ink and paper industries, gender equality remains a significant challenge, and ultimately, it's important to me that this work

helps inform future policy and practice, recognising that collections policies and politics shape history and whose work is recognised," Dr Williams explained. "Working with each of those industries to think about archives, legacy, and how heritage is being documented, we will provide opportunities for many parts of today's creative economy to future-proof their record-keeping and archives in accessible and inclusive ways."

Frances Burstow, Director of Talent and Skills at UKRI said: "UKRI's Future Leaders Fellowships provide researchers and innovators with long-term support and training to embark on large and complex research programmes, to address key national and global challenges. The programme supports the research and innovation leaders of the future to transcend disciplinary and sector boundaries, bridging the gap between academia and business.

"The fellows announced today demonstrate how UKRI supports excellence across the entire breadth of its remit, supporting early-career researchers to lessen the distance from discovery to real world impact."

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