



# UNIVERSITY OF CAMBRIDGE

Department of Applied Mathematics and  
Theoretical Physics

## Research Associate (x2): Rare Events in Non-equilibrium Statistical Physics

Department of Applied Mathematics and Theoretical Physics

**Closing Date:** 30 November 2024  
**Job Reference:** LE43318



# Research Associate (x2)

**Salary:**

£36,924–£45,163 p.a.

**Contract:**

Fixed Term

**Location:**

Centre for Mathematical Sciences

**Department:**

Department of Applied  
Mathematics and Theoretical  
Physics

**Responsible to:**

Professors Mike Cates, Rob Jack  
and Ronojoy Adhikari

**Working pattern:**

Full-time

**Purpose of the role**

The purpose of this role is to support and maintain the University's national and international reputation for excellence in teaching and research. Contribution to excellence in research will be as a member of a research team carrying out research at a similar level to that undertaken by lecturing staff and will provide substantial scope for academic judgement, originality, interpretation and presentation of results. The role holder will assist with grant administration and the writing of reports for funding bodies. Contribution to teaching will include assistance in the presentation of seminars and may include participation in the research group's teaching programme.

The role holder will participate in the overall contribution of the department/faculty, as appropriate.

**Appointment**

Recruitment to a role at this level is determined only by personal merit and the application of criteria related to the duties of the role. Either, posts are advertised and an appointment made by open competition, or posts are filled by promotion from a role at the level of Research Assistant.

All applicants are legally required to demonstrate the right to work/permission to work in the UK. The requirement for any higher level pre-employment checks is dependent on the role and is detailed in the advert and/or further particulars. Offers of employment will be conditional upon the satisfactory outcome of all required pre-employment checks and whether an outcome is satisfactory will be determined by the University.

**Promotion**

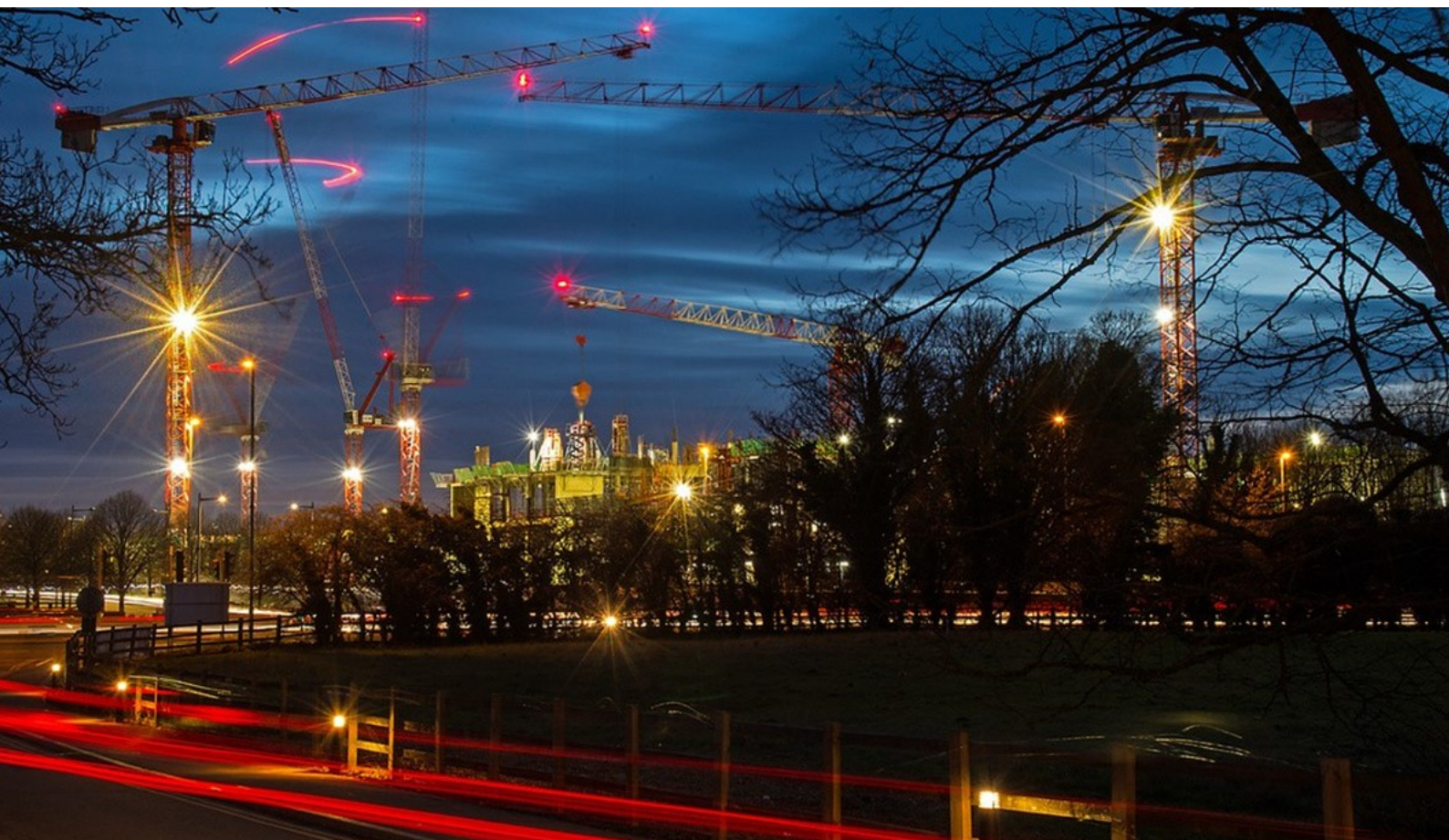
Progression from one grade to another is not automatic and requires a positive recommendation from the department/faculty. Promotion to Senior Research Associate requires the approval of the relevant faculty board (or equivalent body) and the role holder must meet the criteria for a role at that level.



# Research Associate (x2)

## Key responsibilities

- Research and scholarship: develop research objectives and proposals for own or joint research; conducts individual collaborative research projects; write up research work for presentation and publication; continually update knowledge and understanding in field or specialism; translate knowledge of advances in the subject areas into research activity; manage own research and administrative activities, with guidance if required.
- Assist in the preparation of proposals and applications to external bodies, e.g. for funding and contractual purposes; communicate material of a specialist or highly technical nature.
- Teaching and learning support: may assist in the supervision of student projects; provide limited supervision/instruction to classes; may assist in the development of student research skills; may plan and deliver seminars relating to research area.
- Liaison and networking: liaise with colleagues and students; build internal and external contacts and participate in networks for the exchange of information and to form relationships for future collaboration.
- Plan the use of research resources, laboratories and workshops as appropriate; plan and manage own research activity in collaboration with others; contribute to planning of joint research projects led by principal investigator.



# Person specifications

	Essential	Desirable
<b>Education</b>		
Possesses a PhD in a relevant specialist subject area	✓	
<b>Experience and knowledge</b>		
The role holder would possess some research experience with sufficient breadth/depth of specialist knowledge in the discipline and of research methods and techniques to work within established research programmes.	✓	
Will continually update knowledge in the specialist areas and engage in continuous professional development.	✓	
Experience with managing own workload.		✓
Experience of communicating research to non-expert audiences		✓



# The Department

## The Department of Applied Mathematics and Theoretical Physics (DAMTP)

The Department of Applied Mathematics and Theoretical Physics is one of the largest and strongest departments of its kind in Europe. DAMTP is a large Department with around 50 academics (professors, readers and lecturers) and almost 100 contract research staff. There are also 20 – 30 visiting academics, 130 postgraduate research students and 100 graduate students. Over 800 undergraduate and postgraduate students are enrolled in Parts I to III (years 1 to 4) of the Mathematical Tripos. Part III is not only the 4<sup>th</sup> year of the undergraduate course, but attracts more than 100 students each year from outside Cambridge, who take it as a one-year postgraduate course, leading to a Masters degree.

DAMTP shares responsibility for teaching in the Mathematical Tripos with its sister Department, the Department of Pure Mathematics and Mathematical Statistics (DPMMS). DAMTP also has responsibility for teaching mathematics to undergraduates taking Natural Sciences. DAMTP and DPMMS are accommodated, along with the Isaac Newton Institute for Mathematical Sciences and the Betty and Gordon Moore Library (covering mathematics, physical sciences and technology) at the Centre for Mathematical Sciences, a purpose-built complex in Wilberforce Road.

The Faculty of Mathematics is a supporter of the Good Practice Scheme developed by the London Mathematical Society's Women in Mathematics Committee (<http://www.lms.ac.uk/women/good-practice-scheme>). The Department would particularly welcome applications from women, since women are, and have historically been, underrepresented on our research staff. The Department is also keen to attract applications from candidates who have a genuine interest in,



and commitment to, developing the role of women in mathematics and who can demonstrate the potential to be strong role models to female mathematicians.

## Research

Current research in DAMTP is loosely organised into eight broad subject areas: Applied and Computational Analysis, Astrophysics, Geophysics, Fluid and Solid Mechanics, Mathematical Biology, Quantum Information, High Energy Physics and General Relativity and Cosmology. The boundaries between the areas are not rigid and evolve with time. Many members of staff contribute to more than one area and this is regarded as a key factor in the continuing success of DAMTP.

Research in each of DAMTP's subject areas involves collaboration with strong groups nationally and internationally, and participation in numerous interdisciplinary projects and programmes. Many members of DAMTP have valuable links with industry and other non-academic sectors. For more information please see: <http://www.damtp.cam.ac.uk/research>.

There are strong links with the Isaac Newton Institute for Mathematical Sciences. At any time the Institute runs two parallel research programmes, each usually lasting six months and attracting several dozen mathematical scientists nationally and internationally. In several areas there are also links to research in DPMMS <https://www.dpmms.cam.ac.uk/>, including in general relativity and the analysis of Einstein's equations, and to other Departments within the School of Physical Sciences <https://www.physsci.cam.ac.uk/research>

Further general information about the University of Cambridge, the Department of Applied Mathematics and Theoretical Physics, and Mathematics in Cambridge may be found on the websites: <http://www.cam.ac.uk>, <http://www.damtp.cam.ac.uk> and <http://www.maths.cam.ac.uk>.



# The School

The School of the Physical Sciences is one of six Schools making up the academic work of the University. It covers Astronomy, Chemistry, Earth Science, Geography, Materials Science and Metallurgy, Mathematics and Physics.

The School's aim is to contribute to our understanding of the physical world through excellence in observational, theoretical and experimental science and to extend quantitative, qualitative and combined methodologies to address problems in the fields of biology, technology, medicine, social science and the humanities. In pursuit of these goals, the School coordinates objectives in research, teaching, and infrastructure.



[Physics \(Cavendish Laboratory\)](#)

[Pure Mathematics and Mathematical Statistics \(DPMMS\)](#)

## About the School

The School of the Physical Sciences comprises the following Departments:

[Applied Mathematics and Theoretical Physics \(DAMTP\)](#)

[Chemistry](#)

[Earth Sciences](#)

[Geography \(including the Scott Polar Research Institute\)](#)

[Institute of Astronomy](#)

[Isaac Newton Institute of Mathematical Sciences](#)

[Materials Science and Metallurgy](#)

The School is responsible for allocating core funds to departments and provides broad strategic focus across its constituent departments in a number of areas including; research activity, undergraduate and graduate education, estate needs, fundraising and human resources. As part of the University's annual planning cycle, the School prepares a financial and academic plan which sets out strategic objectives, determines budgets, as well as the flow of resources to departments. The School manages a wide range of administrative activities and projects across its departments and works alongside other Schools to further interdisciplinary research.

The School has over 1500 members of staff, over 3000 students and an annual budget of over £100 million.

# Terms of appointment

## Tenure and probation

Appointments will be made on a fixed-term basis for a period of 24 months, with a possible extension. Appointments will be subject to satisfactory completion of your probationary period detailed in your contract of employment.

## Hours of Work and Working Pattern

The appointment is full-time, Monday - Friday.

## Pension

You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits pension scheme. For further information please visit: [www.pensions.admin.cam.ac.uk](http://www.pensions.admin.cam.ac.uk)

## Annual leave

Full time employees are entitled to annual paid leave of 41 days inclusive of public holidays. For new part-time employees, annual leave will be pro rated based on days worked.

## General information

### Pre-employment checks

### Right to work in the UK

We have a legal responsibility to ensure that you have the right to

work in the UK before you can start working for us. If you do not have the right to work in the UK already, any offer of employment we make to you will be conditional upon you gaining it.

### Health declaration

Once an offer of employment has been made the successful candidate will be required to complete a work health declaration form.

### Qualifications

The person specification for this position lists qualifications that are essential and/or desirable. Please note that if you are offered the post you will be asked to provide your relevant original certificates of these qualifications.

### References

Offers of appointment will be subject to the receipt of satisfactory references.

### Equality and Diversity

The University actively supports equality, diversity and inclusion and encourages applications from all sections of society. We particularly welcome applications from women and/or candidates from a BAME background for this vacancy as they are currently under-

represented at this level in our Department.

### Information if you have a disability

The University welcomes applications from individuals with disabilities. We are committed to ensuring fair treatment throughout the recruitment process. We will make adjustments to enable applicants to compete to the best of their ability wherever it is reasonable to do so and, if successful, to assist them during their employment. Information for disabled applicants is available at <http://www.admin.cam.ac.uk/offices/hr/staff/disabled/>

We encourage you to declare any disability that you may have, and any reasonable adjustments that you may require, in the section provided for this purpose in the application form. This will enable us to accommodate your needs throughout the process as required. However, applicants and employees may declare a disability at any time.

If you prefer to discuss any special arrangements connected with a disability please contact the HR Office Administrator who is responsible for recruitment to this position by email at [hr-office@maths.cam.ac.uk](mailto:hr-office@maths.cam.ac.uk).



# The University

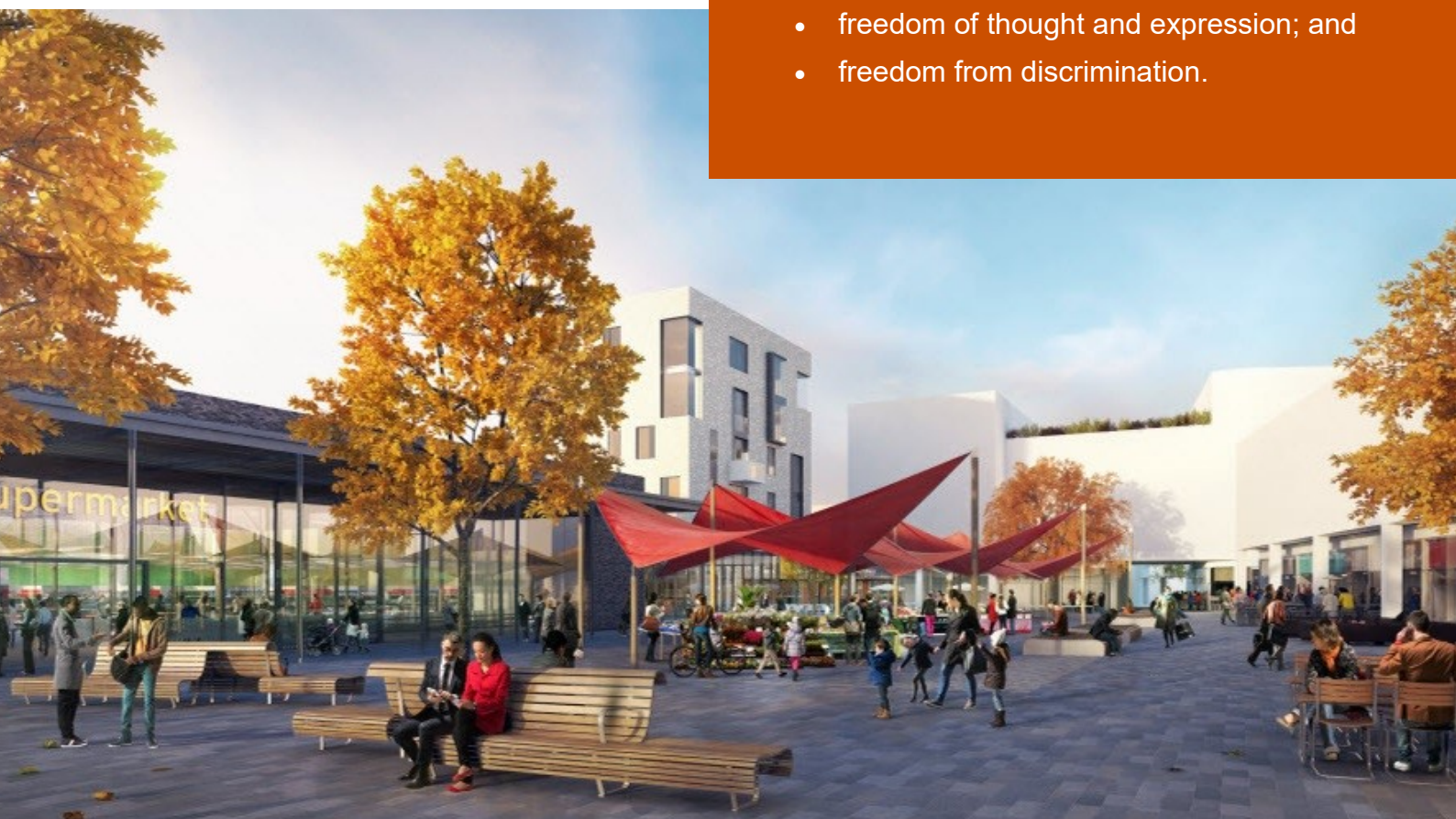
**The University of Cambridge is one of the world's oldest and most successful universities. We are a renowned centre for research, education, and scholarship that makes a significant contribution to society. The University is consistently ranked amongst the top universities in the world. Our affiliates have won more Nobel Prizes than any other University.**

Our sustained pursuit of academic excellence is built on a long history of first-class teaching and research within a distinctive collegiate system. For eight centuries our ideas and innovations have shaped the world. Our principal goal is to remain one of the world's leading universities in an increasingly competitive global higher education sector. Today the University of Cambridge is at the centre of a cluster of over 4,300 businesses employing 58,000 people.

Our capital investment projects include the West Cambridge site, the North West Cambridge development and the growth of the Biomedical Campus in the south of the city. The North West Cambridge development includes the opening of a primary school – the first in the UK to be managed by a University. So we are deeply embedded in, and committed to serving, our local community. These are all conspicuous signs of a University that is not only adapting to new needs, but also anticipating the future.

Our mission is to contribute to society through the pursuit of education, learning, and research at the highest international levels of excellence. Our core values are:

- freedom of thought and expression; and
- freedom from discrimination.





# About us

**The University is one of the world's leading academic centres. It comprises 150 faculties and departments, together with a central administration and other institutions. Our institutions, museums and collections are a world-class resource for researchers, students and members of the public representing one of the country's highest concentrations of internationally important collections.**

The University has an annual income of £2 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £500 million per annum and continues to grow.

The Colleges and the University remain committed to admitting the best students regardless of their background and to investing considerable resources both in widening access and financial support. The 31 Colleges are self-governing, separate legal entities which appoint their own staff. Many academic staff are invited to join a College as a Teaching Fellow, which provides a further social and intellectual dimension. The Colleges admit students, provide student accommodation and deliver small group teaching.

The University awards degrees and its faculties and departments provide lectures and seminars for students and determine the syllabi for teaching and conducting research.

Our instinct for seeking out excellence and setting up enduring and mutually beneficial collaborations has led us to establish strategic partnerships across the globe. Whether it is the successful Cambridge-Africa Programme involving universities in Ghana, Uganda and elsewhere on the African continent; or the close association with the government of India to pursue new research in crop science; or the creation, with Germany's Max Planck Institutes, of a Cambridge-based centre for the study of ethics, human economy and social change – international partnerships are now an inextricable part of the University's make-up.

“Cambridge graduates and researchers have made – and continue to make – a colossal contribution to human knowledge and the understanding of the world around us. Their work touches on the lives and livelihoods of everyone from patients diagnosed with life-threatening diseases, to residents of areas critically affected by climate change, to children growing up in conflict zones. It has a lasting impact on our society, our economy and our culture: the world is truly a better place thanks to their efforts.”

*Stephen Toope, Vice Chancellor 2019*



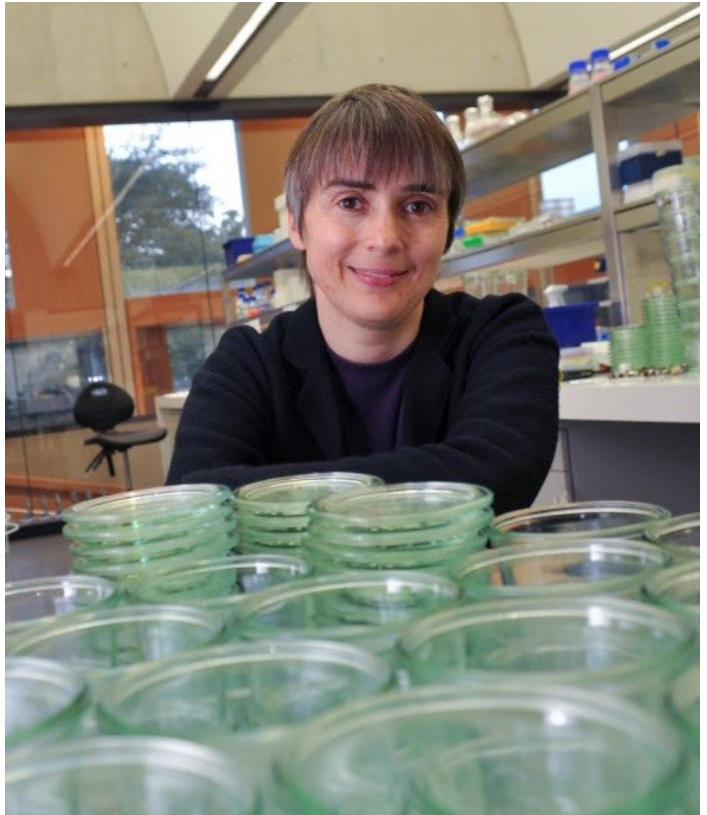
# Working at the University

**Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 16,000 staff from all walks of life and corners of the world.**

The University continually explores strategies to attract and retain the best people. It is committed to supporting its staff to achieve their best. We are a fair, diverse and inclusive society and we believe our staff are our greatest asset. There is strong commitment to developing institutional leadership and supporting and encouraging staff development at all levels.

We offer a variety of roles including academic, research, professional, managerial and support roles. We also offer extensive benefits and excellent learning opportunities within a stimulating working environment.

The University's estate is undergoing the most significant transformation in its history. Cambridge has been able to create a new science and technology campus to the west of the city centre, and is now expanding further to the north west of Cambridge including investing in affordable homes for University key workers and community facilities. Even with our continued development, the University remains within walking or cycling distance across the campus. The University is a major partner on the Cambridge Biomedical Campus and we continue to redevelop our historic city centre sites demonstrating our determination to ensure that we can offer the best facilities and opportunities for our staff and students.



## Equality & diversity

The University has built its excellence on the diversity of its staff and student community. We aim to be a leader in fostering equality and inclusion, and in promoting respect and a sense of belonging for all. We encourage applications from all sections of society. All appointments are made on the basis of merit. We have an Equal Opportunities Policy, along with a range of diversity networks for women, black and minority ethnic and lesbian, gay, bisexual and transgender staff. More details are available here: <http://www.equality.admin.cam.ac.uk/>

The University has a bronze Race Equality Charter aware, with framework for improving the representation, progression and success of minority ethnic staff and students within higher education.

# Living in Cambridge

**Cambridge is rich in cultural diversity. From beautiful University and College buildings, museums and art galleries, quaint gardens and punts on the River Cam, to a vibrant restaurant and café scene, our employees are surrounded by the wonderful features of this unique city.**

You can find a wide-range of high street shops and 3 shopping centres, with independent alternatives at the historic market and nestled within the passageways in the city centre. You will find a cinema, bowling alley, a nightclub and various live performances At the Cambridge Leisure Park, with further entertainment options at the Corn Exchange, Arts Theatre and the ADC Theatre. Further information can be found on the [Visit Cambridge](#) website.

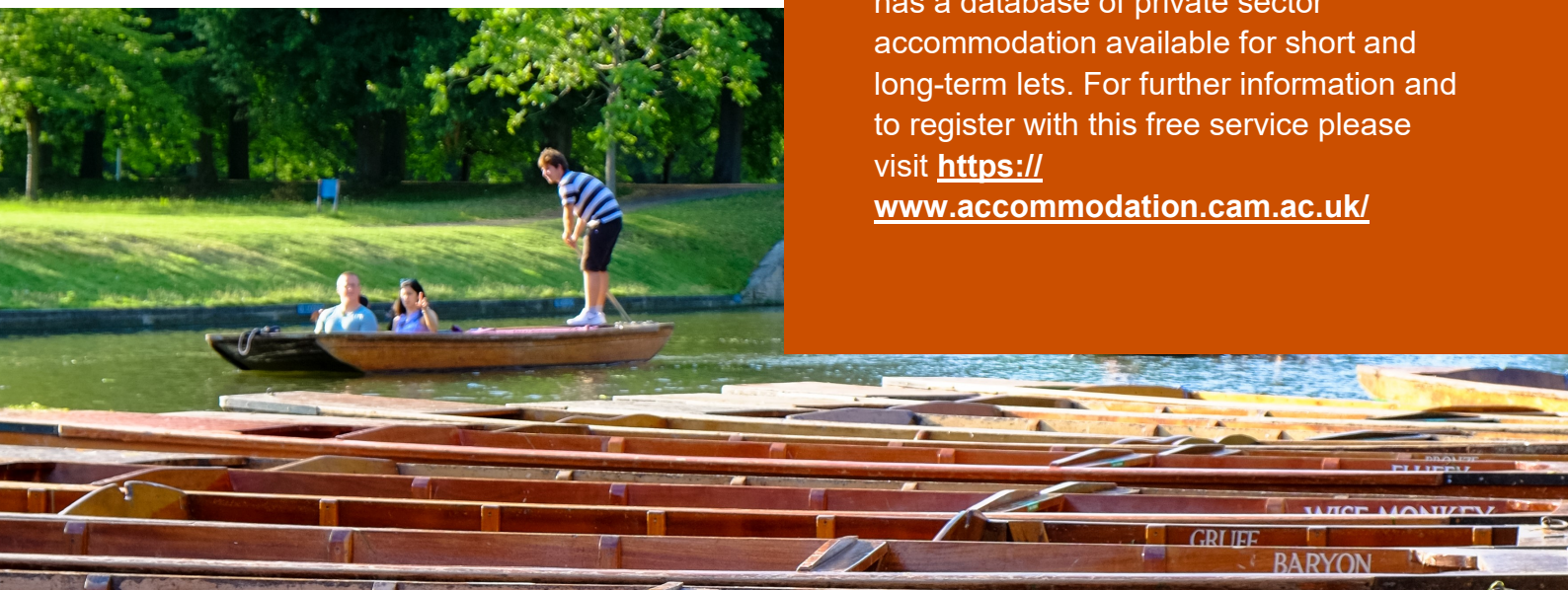
If you prefer the faster pace of life, London is a 45 minute train journey away. For those travelling from overseas, Stansted Airport is just 45 minutes away and Heathrow Airport under 2 hours away. The University is a short distance from a host of other attractions such as Ely Cathedral, Newmarket Races and various wildlife parks and stately homes. Cambridge is also within easy reach of the beautiful Broads and coastlines of Norfolk and Suffolk.

## Relocation Support

The University recognises the importance of helping individuals to move and settle into a new area. We provide support and guidance to those relocating internationally or domestically to take up a post at the University of Cambridge, liaising with other University offices and selected partners to ensure comprehensive relocation support is available. This includes: accommodation, childcare, schools, banking, immigration and transport. If you would like further information, please visit <https://www.accommodation.cam.ac.uk/>. The Shared Equity Scheme and the Reimbursement of Relocation Expenses Scheme provide financial assistance to qualifying new members of staff with the costs of relocating to Cambridge.

## Accommodation Service

The University Accommodation Service helps staff, students and visiting scholars who are affiliated to the University in their search for suitable accommodation in Cambridge. The dedicated accommodation team can provide access to a wide range of University-owned furnished and unfurnished properties, and has a database of private sector accommodation available for short and long-term lets. For further information and to register with this free service please visit <https://www.accommodation.cam.ac.uk/>



# What Cambridge can offer

**We offer a comprehensive reward package to attract, motivate and retain high performing staff at all levels and in all areas of work.**

The University offers a wide range of competitive benefits, from family leave entitlement, to shopping and travel discount schemes. Our generous annual leave package contributes to the positive wellbeing of our University employees. Sabbatical leave enables academics to focus on research and scholarship, whilst still maintaining their full salary. The University also has a career break scheme for academic and academic-related staff, with additional flexible working policies for all other staff.

## Pay and benefits

The University salary structure includes automatic service-related pay progression in many of its grades and an annual cost of living increase. In addition to this, employees are rewarded for outstanding contribution through a number of regular pay progression schemes. The University offers attractive pensions schemes for employees, with an additional benefit of a salary exchange arrangement providing tax and national insurance savings. Payroll giving is also a simple, tax-efficient way for employees to make monthly donations to charity.



## CAMBens employee benefits

We offer a CAMBens scheme for University employees, providing access to online and in-store shopping discounts and cashback. With more than 2,000 participating retailers, employees can save money on a wide range of household expenses, from groceries and clothes, to holidays and insurance and much more. A range of local discounts are also available, helping employees to save money whilst also supporting local Cambridge businesses and a CAMBens Cycle to Work salary sacrifice scheme is also available, which enables employees to save money on transport costs. A 10% discount rate on the purchase of train season tickets, bulk buy tickets and an interest free travel to work loan are also available for staff of the University.



# What Cambridge can offer

## Family-friendly policies

The University recognises the importance of supporting its staff. We have a range of family-friendly policies to aid employees' work-life balance including a generous maternity, adoption and shared parental leave entitlement of 18 weeks full pay and emergency family care support via My Family Care.

Other family-friendly support includes:

Our highly regarded workplace nurseries, a childcare salary exchange scheme and a high quality holiday Playscheme may be available to help support University employees with caring responsibilities (subject to demand and qualifying criteria). Further childcare information can be found here:

<https://www.childcare.admin.cam.ac.uk/>

The Newcomers and Visiting Scholars Group is an organisation within the University run by volunteers whose aim is to help newly arrived wives, husbands, partners and families of Visiting Scholars and members of the University to settle in Cambridge and give them an opportunity to meet local people. The Office of Postdoctoral Affairs supports the postdoctoral community within Cambridge. Further details are available here: <https://www.opda.cam.ac.uk/>

## Your wellbeing

The University's Sport Centre, Counselling Services and Occupational Health are just some of the support services available to University employees to promote their physical and mental wellbeing. There are many societies in Cambridge catering for almost every taste and interest. Whether you want to take part in a sport, participate in music or drama, pursue a hobby, or join a political group, you will almost certainly find that a society exists for this purpose. The University also hosts the [Cambridge Science Festival](#) and [Cambridge Festival of Ideas](#), as well as [Open Cambridge](#) weekend, which together attract over 50,000 visitors per year. The festivals are a great opportunity to get your first taste of public engagement, through volunteering, supporting hands-on activities or proposing a talk.

## Development opportunities

We support new employees to settle in through various activities. The encouragement of career development for all staff is one of the University's values and we put this into practice through various services and initiatives. Our Personal and Professional Development Department provides development opportunities and courses for all University employees. These include face-to-face sessions, online learning modules and webinars. Employees may also apply for financial support to undertake training that will lead to a qualification. We offer reduced staff fees for University of Cambridge graduate courses and the opportunity to attend lectures and seminars held by University departments and institutions.



# How to apply

Applications should be submitted online via the University of Cambridge jobs page [www.jobs.cam.ac.uk](http://www.jobs.cam.ac.uk) by clicking “Apply online” in the job advert. You will need an email address to register for our online system.

Conversations about flexible working are encouraged at the University of Cambridge. Please feel free to discuss flexibility prior to applying (using the contact information below) or at interview if your application is successful.

As part of the application process, you will be asked to supply the names of two academic referees. Please note that (if you consent) your referees will be contacted once your application is complete and you should ensure that your referees upload a reference to the University’s Web Recruitment System before the closing date of **30 November 2024**.

Informal enquiries about these positions may be made to any of the investigators: Mike Cates at [mec22@cam.ac.uk](mailto:mec22@cam.ac.uk), Rob Jack at [rlj22@cam.ac.uk](mailto:rlj22@cam.ac.uk), Ronojoy Adhikari at [ra413@cam.ac.uk](mailto:ra413@cam.ac.uk). However, we are unable to read CVs or other application materials before a formal application is made.

If you have any queries regarding the application process, please contact [LE43318@maths.cam.ac.uk](mailto:LE43318@maths.cam.ac.uk).

The closing date for applications is **30 November 2024**.

The University of Cambridge is a signatory of the San Francisco Declaration on Research Assessment (DORA). DORA recognises the need to improve the ways in which the outputs of scholarly research are evaluated. The University expects candidates to apply the principles of DORA when preparing their applications. We do not use journal-level metrics when assessing the quality of research outputs. Applicants should not include journal-level metrics, such as the Journal Impact Factor, anywhere in their application materials. More information about DORA, its principles and aims can be found at: <https://sfdora.org/> and <https://www.research-strategy.admin.cam.ac.uk/research-policy/DORA>.

