University Lectureship in Fluid or Solid Mechanics

Department of Applied Mathematics and Theoretical Physics
The role

Purpose of the role

This University Lectureship is jointly funded by Churchill College, and shall be held in conjunction with a Teaching Fellowship and College Lectureship at Churchill College. This exciting new post will combine teaching, research and other activities aimed at promoting women’s participation and achievement in Mathematics. The successful candidate will need to demonstrate the potential to be a strong role model to female mathematicians.

Key responsibilities

The successful candidate will be expected to

- contribute to the teaching programmes of both the Department and Churchill College at undergraduate and graduate level.
- perform other departmental duties such as those associated with examinations.
- contribute, as appropriate, to the academic administration of the Department and the College.
- investigate new areas of research and funding opportunities, and submit grant applications.
- write papers for publication, attend conferences, network with national/international colleagues and give presentations.

Salary:
£39,992 - £50,618

Contract:
Permanent

Location:
CMS

Department:
DAMTP

Responsible to:
Prof. Nigel Peake

Working pattern:
Full-time
## Person specification

<table>
<thead>
<tr>
<th>Essential</th>
<th>Desirable</th>
</tr>
</thead>
</table>

### Education

The successful candidate will hold a PhD in Mathematics or equivalent

### Academic

A track record of excellent research publications and ability to lead and pursue a research programme of the highest standard

Demonstrate a firm commitment to teaching at both the undergraduate and postgraduate levels

A track record of securing research funding

Willing to take a leading role in the supervision of Research Students

An interdisciplinary and collaborative research approach

### Leadership experience and achievements

Willingness to undertake management and administrative duties

Proven ability to lead and inspire a team and work with vision and foresight
The Department and College

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. The Department currently consists of 29 Professors (9 of whom are FRS), 9 Readers, 1 Senior Lecturer and 11 Lecturers, approximately 80 Post-doctoral Fellows and approximately 110 Research 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 4th 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 Faculty is actively engaged with the Athena SWAN Award Scheme (holding a Bronze Award from 2013). The Department would particularly welcome applications from women, since women are, and have historically been, underrepresented on our academic 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

Research in DAMTP in the broad areas of fluid and solid mechanics is exceptionally strong and dynamic, with groups working on applications in many areas, including geophysics, the environmental biology, astrophysics and industrial and technological problems. 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 DAMTP 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. The Department is home to the GK Batchelor Laboratory, in which numerous fluid mechanical and biophysical experiments are undertaken. The laboratory has extensive infrastructure, including facilities for microfluidics, confocal microscopy and micromanipulation, high-speed imaging, tracking microscopy, cell growth and molecular biology. A dedicated, centrally funded machine/electronics shop provides world-class device fabrication and technical expertise in the service of the experimental groups.

For more information please see: http://www.damtp.cam.ac.uk/research.

The Department has a large amount of computing power, consisting mainly of a sophisticated heterogeneous network of UNIX workstations and Linux PCs, but also incorporating some Windows and Macintosh systems. At University level there is larger-scale provision via the University High Performance Computing Service (http://www.hpc.cam.ac.uk/). Alongside this, DAMTP itself hosts important parts of the STFC-funded DiRAC-2 facility.

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/, and to other Departments within the School of Physical Sciences http://www.physsci.cam.ac.uk/researchinsps.
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.cam.ac.uk), [http://www.damtp.cam.ac.uk](http://www.damtp.cam.ac.uk) and [http://www.maths.cam.ac.uk](http://www.maths.cam.ac.uk).

**Churchill College**

Churchill College, one of the 31 constituent colleges in the University of Cambridge, was established in 1960 as the national and Commonwealth memorial to its founder, Sir Winston Churchill. The College has an historic mission in STEM subjects, but also has many students in the Arts and Humanities: its academic strength lies across all disciplines. The largest Cambridge College in physical terms, it occupies a superb 42-acre site on the edge of the city centre, which houses its community of some 140 Fellows, 30 postdoctoral By-Fellows, 350 graduate students and 485 undergraduates. The College is an informal and highly sociable environment, with a tradition of widening participation and fostering social mobility as well as of outstanding academic achievement. It has arguably the best record in Oxford and Cambridge in respect of taking state-educated students, and is also notably international in character. We have exceptional accommodation for students and academics with families. Further information may be found at [www.chu.cam.ac.uk](http://www.chu.cam.ac.uk).

**Teaching Fellowship and College Lectureship**

Title A Teaching Fellows (also known as College Lecturers) at Churchill complete undergraduate small-group teaching (supervision), direct studies (when required), engage in undergraduate recruitment and admissions, and participate more generally in the academic (and ideally also the social) life of the College. Fellows may also hold more substantial additional College posts, e.g. pastoral Tutor, which are separately remunerated. The postholder will perform all duties associated with the position of Stipendiary College Teaching Officer, which Churchill College’s contribution to the overall stipend for this post encompasses.

The principal duties include Direction of Studies in Mathematics and the small-group teaching of supervisions to undergraduate students of Mathematics of up to six hours a week during Term, or 120 hours throughout the academic year, though this may vary at the reasonable discretion of the College having regard to what is commonly required of a College Lecturer at the College at the time.

The fixed-payment portion of Direction of Studies (as opposed to the per capita portion of Direction of Studies) and all supervisions up to 6 hours per week or 120 hours per year will be remunerated as part of the postholder’s stipend, not separately.

As Director of Studies, the postholder will be required to participate in admissions and outreach activities, including interviewing and selecting students in the intercollegiate admissions ‘pools’. They will also be expected to participate in judging applications for Junior Research Fellowships and Postdoctoral By-Fellowships, and updating subject-related publicity material. The duties of Director of Studies may be offset against some supervision duties by agreement with the Senior Tutor of the College. The role may also involve supporting graduate students in such a way as is appropriate.

Supervisions in excess of 120 hours per year will be separately remunerated, and payments will be made for completing admissions interviews, and setting and marking internal tests.

The postholder will be subject to the normal Terms and Conditions, Policies and Procedures for Stipendiary College Teaching Officers and Lecturers of the College who also hold a University Lectureship.

Title A Fellows are entitled to live in rent-free single accommodation in the College (though paying a service charge) and to the other benefits of a Fellowship, which include up to seven free meals per week taken in Hall. Fellows are expected to participate fully in the academic life of the College (which includes attending Governing Body twice a term and participating in other College committees as appropriate) and are encouraged to participate in its active social life. Research is also a substantial component of a College Lecturer’s duties and, like the University, the College expects the postholder to be research active. Further information may be obtained from the Senior Tutor of Churchill, Mr Richard Partington, at senior.tutor@chu.cam.ac.uk
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.

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
- Issac Newton Institute of Mathematical Sciences
- Materials Science and Metallurgy
- Physics (Cavendish Laboratory)
- Pure Mathematics and Mathematical Statistics (DPMMS)

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

Start date
This post is available from 1 October 2018 although sooner if the right candidate is available.

Salary
The salary is in the range of £39,992 - £50,618. In exceptional circumstances, it may be possible to offer a supplement to the salary range stated for this role of up to £10,000. Any such supplement would be awarded on the basis of a demonstrable history of exceptional achievement and is entirely at the discretion of the University.

Tenure and probation
Appointments are to the retiring age for established academic positions. For University Senior Lecturers and University Lecturers the appointment is subject to satisfactory completion of a five year probationary period.

Hours of Work and Working Pattern
The appointment is full-time.

Pension
You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefits pension scheme. If you are already a member of the NHS Pension scheme, you may be eligible to continue in the scheme and should contact the Pensions section of the University: www.pensions.admin.cam.ac.uk/.

Annual leave
Academics are entitled in any holiday year to take a minimum of 28 days annual paid holiday. These periods are inclusive of public holidays that fall outside full term.

Sabbatical leave
Cambridge is generous in having statutory provision for leave of absence of one term for every six terms of service. Academic staff use this opportunity for study and research.

Residence
It is a requirement of the role that you are resident in the University during term-time. Further information can be found here: http://www.admin.cam.ac.uk/univ/so/2014/chapter11-section1.html#heading2-5.

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 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.

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

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 Department Administrator, who is responsible for recruitment to this position. Alternatively, you may contact the HR Business Manager responsible for the department you are applying to via hrenquiries@admin.cam.ac.uk.

Terms of appointment
University of Cambridge
www.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.
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 £1.66 billion. Research income, won competitively from the UK Research Councils, the European Union (EU), major charities and industry, exceeds £400 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.

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.

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.

Our ideas and innovations have shaped the world. Our campaign, 'Dear World... Yours, Cambridge', will raise £2 billion to help us shape all our futures.
Working at the University

Working at Cambridge you will join a diverse, talented and innovative community, with more than 18,000 students and over 11,000 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. Furthermore, the University’s Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women. 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 has signed up to the Race Equality Charter, a notional 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.

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.

Further information about attractions in and around Cambridge can be found at Visit Cambridge, the official tourism website for the city.
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.

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. CAMbens Cars and CAMbens Cycle to Work salary sacrifice schemes are also available, which enable 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 of Cambridge.

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. In addition, our highly regarded workplace nurseries, childcare vouchers, a childcare salary sacrifice scheme and a high quality holiday play scheme are available to help support University employees with caring responsibilities. 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.
What Cambridge can offer

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.

Relocating to Cambridge
The University Accommodation Service exists to help employees in their search for a rental home in Cambridge. A new University development at North West Cambridge called Eddington offers subsidised rented accommodation to University staff. The development consists of high quality furnished one and two bedroom apartments. For more information about the development and how to apply please visit the website www.nwcambridge.co.uk

The importance of helping individuals settle into a new area is also recognised by the University. The Shared Equity Scheme https://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employee-benefits/financial/shared-equity-scheme provides financial assistance to qualifying new members of staff with the purchase of living accommodation, where they have to relocate to take up their appointment. Removal expenses are also available for qualifying new members of staff. The University has introduced a Rental Deposit Loan Scheme to support new starters and existing employees with the set up costs of renting privately in the Cambridge area: https://www.hr.admin.cam.ac.uk/pay-benefits/cambens-employee-benefits/relocation-housing/rental-deposit-loan-scheme

Equality & diversity
The University has a vibrant and varied community. We support and encourage under-represented groups and we value diversity. We welcome applications from individuals with disabilities. Our recruitment and selection procedures follow best practice. 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/

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. The CareerStart@Cam programme also supports employees in assistant staff roles who do not hold higher education qualifications to develop their skills, experience and qualifications.

Whether it is understanding the molecular basis of neurodegenerative diseases, or helping farmers in India increase their yield, or discovering better ways to live in large cities – I know that what we do in Cambridge affects lives, and livelihoods, the world over.

Vice Chancellor Emeritus, Professor Sir Leszek Borysiewicz, 2016
How to apply

To submit an application for this vacancy, please click on the link in the ‘Apply online’ section of the advert published on the University’s Job Opportunities pages at http://www.jobs.cam.ac.uk/job/14949/ This will route you to the University’s Web Recruitment System, where you will need to register an account (if you have not already) and log in before completing the online application form.

You will need to upload a full curriculum vitae, a list of publications and one page of A4 detailing research interests and future plans. You should also include the contact details of three academic referees. Please ensure that your referees are contactable at any time during the selection process, and are made aware that they will be contacted by the Mathematics HR Office Administrator to request that they upload a reference for you to our Web Recruitment System; and please encourage them to do so promptly.

Informal enquiries should be directed in the first instance to either Professor Nigel Peake (Head of Department) LE13279@maths.cam.ac.uk or Mr Richard Partington (Senior Tutor) Richard.Partington@chu.cam.ac.uk. For any queries regarding the application process please contact LE13279@maths.cam.ac.uk

All applications must be received by 26 April 2018.

Interviews are expected to be held on either 8 or 22 March.