INI-Simons Research Fellow

Isaac Newton Institute for Mathematical Sciences

Closing Date: 11 December 2022
Job Reference: LN34079
This opportunity has been created by the Isaac Newton Institute for Mathematical Sciences and the Simons Foundation. We invite applications for up to six INI-Simons Postdoctoral Fellowships.

**Purpose of the role**

The Isaac Newton Institute for Mathematical Sciences (INI) is a national and international visitor research centre running research programmes on selected mathematical themes, with applications in a very wide range of societal, scientific and technological areas. It attracts leading scientists, both from the UK and from overseas, to interact in research over extended periods.

The INI-Simons Postdoctoral Fellowship Scheme was set up with the help of a generous grant from the Simons Foundation to support and nurture the best researchers in the mathematical sciences at an early stage in their career.

It is a unique opportunity to collaborate for an extended period with field leaders from across the world in your chosen research area whilst participating in an Isaac Newton Institute programme, and also to hold a position within one of the University of Cambridge mathematics departments or within another mathematics department in the UK.

These prestigious one-year fellowships will see the successful candidates spending 4-6 months fully participating in one of the following INI programmes:

- **Rich and Nonlinear Tomography – a multidisciplinary approach** (January – June 2023)
- **Mathematical theory and applications of multiple wave scattering** (January – June 2023)
- **The mathematical and statistical foundation of future data-driven engineering** (January – June 2023)
- **New statistical physics in living matter: non equilibrium states under adaptive control** (July – December 2023)
- **Mathematics of movement an interdisciplinary approach to mutual challenges in animal ecology and cell biology** (July – December 2023)
- **Black holes: bridges between number theory and holographic quantum information** (July – December 2023)
- **New equivariant methods in algebraic and differential geometry** (January – June 2024)
- **Anti-diffusive dynamics: from sub-cellular to astrophysical scales** (January – June 2024)

with the remainder of the period spent within one of the University of Cambridge mathematics departments or within the mathematics department of another UK-based higher education institution.

This scheme has been established to enable exceptional early career researchers in the mathematical sciences to gain experience, independence and new connections, and hence assist them during the present difficult situation of COVID-19 on their way to a successful academic career.
Main duties
Duties include developing and conducting individual and collaborative research projects. The role holder will be expected to plan and manage their own research and administration, with guidance if required.

You must be able to communicate material of a technical nature and be able to build internal and external contacts. You may be invited to assist in the supervision of student projects, the development of student research skills, provide instruction or plan/deliver seminars relating to the research area.

Working Conditions Office based. Some travel to similar sites may be required. Normal health and safety requirements will be followed.

Physical requirements Requires normal physical effort associated with an office environment (or equivalent).

Sensory requirements Uses tools/equipment requiring the use of dexterity and/or precision in order to complete a specific task.
## Person Specification

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<th>Criteria</th>
<th>Essential</th>
<th>Desirable</th>
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<td><strong>Education/Qualifications</strong></td>
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<td>A PhD degree in the mathematical sciences or a closely related field by the time of the appointment.</td>
<td>✓</td>
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<td><strong>Specialist knowledge and skills</strong></td>
<td>✓</td>
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<td>• Research experience and a breadth/depth of specialist knowledge and of research methods and techniques in the discipline.</td>
<td>✓</td>
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<td>• The ability to develop research objectives and proposals for individual or joint research.</td>
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<td>• Strong communication and organisational skills, including experience writing up research ideas for presentation and publication and communication of material of a specialist or highly technical nature.</td>
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<td>• The ability to work independently and as part of a team.</td>
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<td>• Continually update knowledge and understanding in field or specialism.</td>
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<td>• Plan and manage own research activity in collaboration with others.</td>
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<td><strong>Interpersonal &amp; communication skills</strong></td>
<td>✓</td>
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<td>Candidates should have excellent organisational skills with an ability to work independently. They should be able to communicate effectively both orally and in writing at an appropriate level.</td>
<td>✓</td>
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<td><strong>Liaison and Networking</strong></td>
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<td>An ability to build internal and external contacts and participate in networks for the exchange of information, and to form relationships for future collaboration.</td>
<td>✓</td>
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The Isaac Newton Institute for Mathematical Sciences (INI) is a renowned national and international visitor research centre which runs long-term research programmes (mostly of four or six months duration) on selected themes in the mathematical sciences with applications over a wide range of science and technology. As the UK’s National Institute for Mathematics, it attracts the leading scientists from overseas and the UK to interact in research over an extended period.

The INI has a vital national role, building on many strengths that already exist in UK Universities, aiming to generate a new vitality through stimulating and nurturing research throughout the Country. During each scientific programme (of which there can be up to 9 during one year), new collaborations are made, and ideas and expertise are exchanged and captured through lectures, seminars and informal interaction – which the INI building has been specifically designed to encourage.

The INI is a world famous place for research in the mathematical sciences, with a reputation for efficient management and a warm welcome for visitors. With around 2,500 visitors per year, the INI attracts leading mathematicians from around the world and the UK to collaborate in research over an extended period and co-ordinates its research activity with other institutions internationally. These visitors are predominantly academics across a range of career levels, from PhD to senior professors. A third of these visitors are from the UK, a third from the EU, and the remaining third from the rest of the world. The INI is renowned as being the market leader in Europe for running such mathematical programmes. The INI runs programmes and workshops throughout the year (50 weeks a year), and routinely has over 20 interdisciplinary workshops in one year.
An integral part of the INI is its Knowledge Exchange initiative, known as the Newton Gateway to Mathematics, which manages events across a wide spectrum of activities involving research councils, academics from non-mathematical disciplines, business, industry, policy-makers and so on.

The INI occupies two academic buildings, with 56 desks for its research visitors, administrative space and lecture rooms, and also holds long-term leases on high-quality accommodation for visitors.

Within the University of Cambridge the INI is a department in the School of Physical Sciences. The Head of the INI is the Director, who holds a full-time academic appointment and is a Professor in the University. The Deputy Director is a part-time academic appointment.

The work of the INI is supported by research councils, the University of Cambridge, charitable trusts and foundations, and philanthropy. These sponsors have many and varied requirements in relation to the work to be done, and their provisions about legitimate use of funds, and reporting on outcomes, need to be respected.
School of the Physical Sciences

The School of the Physical Sciences is one of six Schools making up the academic work of the University. It covers Astronomy, Chemistry, Earth Sciences, 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 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
- Isaac 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. 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 £100m.
Terms of Appointment

Tenure and probation
Appointment will be made on a fixed term basis for 12 months. The post is funded by a research grant and in the event that this funding should cease, the post may be at risk of redundancy. The head of department or his/her nominee will keep the role holder informed of the funding situation.

Appointments will be subject to satisfactory completion of a six month probationary period.

Hours of Work and Working Pattern
The hours of work for the position are 37 hours per week, working Monday – Friday.

Pension
You will automatically be enrolled to become a member of USS (Universities Superannuation Scheme) – a defined benefit and defined contribution pension scheme. For further information please visit: 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 part-time employees, annual leave will be pro rata’d 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
We particularly encourage women and /or candidates from a Black, Asian and Minority Ethnic background to apply for this vacancy as they are currently under-represented at this level within our University.

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 Department Administrator, who is responsible for recruitment to this position.
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. Furthermore, the University’s Athena SWAN award recognises and celebrates good practice in recruiting, retaining and promoting women.
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. 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.
How to apply

Applications should be submitted online via the University of Cambridge jobs page 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.

Using the Upload section of the online application, please ensure that you include:

- Your Curriculum Vitae (CV);
- A cover letter stating your proposed start and end dates, the INI programme that you intend participating in, the name, home institution and contact details of your intended supervisor for the period of the Fellowship not spent at INI;
- A description of your recent and proposed workplan (at most 3 pages);
- Statements of support from your proposed supervisor for the period not spent at INI and the Head of Department if that part of your Fellowship is to be spent outside Cambridge.

If you upload any additional documents which have not been requested, we will not be able to consider these as part of your application.

In addition to the statements of support identified above, the names and contact details of two academic referees are a necessary part of the submission. It would be helpful to allow contact with your referees prior to interview. Where possible, we suggest selecting the option ‘at any time during the process.’

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.

Informal enquires are welcomed and should be directed to: Susan Gowans (Deputy Business and Operations Manager) at deputybusinessandoperationsmanager@newton.ac.uk

The closing date for applications is: 11 December 2022

The interview date for the role is w/c 16 January 2023 subject to confirmation.