

THE UNIVERSITY OF MANCHESTER
PARTICULARS OF APPOINTMENT
FACULTY OF SCIENCE & ENGINEERING
SCHOOL OF MATHEMATICS
HEILBRON FELLOWSHIP IN MATHEMATICS
VACANCY REF: S&E-12883

Salary:	£37,345 to £42,036 per annum (according to relevant experience) plus supplement of £3500 per annum
Hours:	Full time
Duration:	1 October 2019 until 30 September 2022
Location:	Oxford Road, Manchester

Enquiries about the vacancy, shortlisting and interviews:

Email: maths-fellowships@manchester.ac.uk

Background

Manchester is the largest city in Northern England, with a metropolitan area population of over 2.5 million. Traditionally a commercial and industrial powerhouse, today it is also a cosmopolitan centre of education, media, arts and sport. Internationally famed for spectator sport and nightlife, it also has world-class facilities for music, participation in sport, arts and shopping. Direct rail links connect to cities across the UK, and the international airport provides direct flights across Europe and to major hubs worldwide. Just outside the city, the Peak District National Park provides some of the country's best-loved terrain for outdoor activities, while the Yorkshire Dales, Snowdonia and Lake District National Parks are also easily accessible.

The **Heilbronn Institute for Mathematical Research (HIMR)** (www.heilbronn.ac.uk) is a national research institute, established by UK Government Communications Headquarters (GCHQ) to work in partnership with universities. Based in Bristol, it has an additional office in London and a further office in Manchester is set to open shortly. The Institute's research programme is divided equally into "internal" research on behalf of GCHQ, and "external" research in areas of the Fellows' choice. The Chair of HIMR, Professor Jon Keating, is responsible for external research and activities while the Head of HIMR, Dr Daniel Shiu, is responsible for internal research.

The **University of Manchester** (www.manchester.ac.uk) was formed in 2004 by combining the Victoria University of Manchester and UMIST. It is the largest non-federal university in the UK, with over 12,000 staff, over 40,000 students and an annual income of over £1 billion. It and its predecessor institutions have a distinguished history of research and teaching, tracing back to 1824 and having produced 25 Nobel laureates. Research highlights include Rutherford's work

on splitting the atom (leading to the 1908 Nobel prize for physics), the world's first stored-program computer (the Manchester University Mark I), the world's first steerable radio telescope (at Jodrell Bank), the birth of chemical engineering, and most recently the discovery of graphene (leading to the 2010 Nobel prize for physics). The Academic Ranking of World Universities currently rates Manchester as the 34th best university in the world and 8th best in Europe.

The **School of Mathematics** (www.maths.manchester.ac.uk) is one of the largest mathematics departments in the UK, with approximately 80 permanent academic staff, 30 research assistants and fellows, 1,100 undergraduate students and 250 postgraduate students. Based in the purpose-built Alan Turing Building, we pride ourselves on providing a friendly, supportive and collegial environment to foster world-class research and teaching. In the 2014 Research Excellence Framework, 90% of the School's research was rated as internationally excellent or world-leading. Dedicated research space allows us to hold around 15 regular specialist research seminars, regular advanced courses attended by both graduate students and staff, and to host numerous visitors, conferences and workshops. A legacy held in trust supports an extensive programme of distinguished research visitors, research events and public engagement activities.

Families and Work-life Balance. The School and University are committed to the well-being and work-life balance of all staff. We have a package of family-friendly policies covering flexible working, career breaks and entitlement to paid maternity, paternity and adoption leave. For more details on these and other benefits see <http://www.manchester.ac.uk/connect/jobs/benefits-working-here/>. The School is fully committed to Athena SWAN principles to promote opportunities for all in science and is a supporter of the LMS Good Practice Scheme; for more details of our activities in this area see <http://www.maths.manchester.ac.uk/about-us/women-in-maths/>.

Job Description

Applications are invited for the above posts, to start in October 2019 or at a mutually agreed alternative date. The Fellowships last for three years, and the holders will divide their time equally between their own independent academic research ("external research") and the research programme of the Heilbronn Institute ("internal research"). Experience of Algebra or Numerical Linear Algebra, interpreted broadly, is preferred.

External research will be conducted in the School of Mathematics at the University, and involves:

- undertaking research of high quality (in collaboration with colleagues in the University and other institutions where appropriate);
- publishing the results in high quality journals, books or other appropriate outlets;
- attending relevant conferences and workshops, presenting papers, and disseminating results of the research;
- contributing to the research life of the School of Mathematics through participation in research events and activities.

Fellows will have access to at least £2,500 per annum for research expenses, and are able to bid for further funds from the Institute and from external sources.

Internal research will be conducted at the Heilbronn Institute's new office in Manchester, and offers opportunities to engage in collaborative work as well as individual projects. Internal

research may sometimes be externally publishable depending on its nature, but can only be published with GCHQ's agreement.

The Institute acquires all intellectual property rights in the internal research. Rights in the external research are subject to the normal arrangements between University of Manchester and its academic employees, subject to GCHQ acquiring a royalty-free license on any exploitable invention.

Fellows will be provided with mentoring, support and training to help them develop the skills required for an academic career. There may also be opportunities to undertake teaching and/or postgraduate student supervision where this is beneficial for career development. Many former Fellows have gone on to permanent academic appointments in leading universities.

Security Requirements

Some of the Institute's work is highly confidential and subject to formal security procedures. All the internal research must be carried out within the Institute's office and not discussed, even in general terms, elsewhere, without explicit GCHQ permission.

Fellows need to acquire, and continue to qualify for, a security clearance ('Developed Vetting') from GCHQ; they are subject to provisions of the Official Secrets Acts and restrictions on travel to certain countries. UK resident UK nationals will normally be able to meet this condition. Non-UK citizens and UK citizens who are not UK residents should contact the Heilbronn Manager (himr-recruitment@bristol.ac.uk) about eligibility before applying.

The University and the Heilbronn Institute reserve the right to terminate the fellowship in the event of loss of security clearance.

PERSON SPECIFICATION

Essential Knowledge, Skills and Experience:

It is **essential** that the individuals appointed have:

- (or expect soon to be awarded) a PhD or equivalent research experience in mathematics or another relevant subject;
- experience of conducting independent research in mathematics, evidenced by a strong publication record or, if at an early career stage, other evidence of exceptional potential;
- the self-motivation, initiative and organisational skills to plan and carry out research;
- excellent written and oral communication skills in English;
- (or be granted before taking up appointment) appropriate security clearance for work on the Heilbronn Institute's internal research programme.

It is **desirable** that the individuals appointed have:

- a strong record of research in algebra or numerical linear algebra, interpreted broadly.