

HEILBRONN RESEARCH FELLOWSHIPS in Pure Mathematics, Data Science, and Quantum Computing

The Heilbronn Institute for Mathematical Research invites applications for our **3-year Heilbronn Postdoctoral Research Fellowships**. Our Fellowships provide the opportunity to continue personal research alongside working on varied and fascinating classified research projects, collaborating with colleagues in a supportive and encouraging environment that puts an emphasis on teamwork.

Research areas of interest include, but are not restricted to, Algebra, Algebraic Geometry, Combinatorics, Data Science, Number Theory, Probability, and Quantum Information. Fellows have previously been appointed with backgrounds in most areas of Pure Mathematics, Data Science and Statistics, Quantum Information and Mathematical/Theoretical Physics.

We expect to make up to 12 appointments at our partner institutions: [University of Bristol](#), [Imperial College London](#), [King's College London](#), [University College London](#), [The University of Manchester](#). These appointments will mainly be in **Pure Mathematics** with up to two of the appointments at the University of Bristol in **Data Science** or **Quantum Computing**. Heilbronn Fellows divide their time equally between their own research and the classified research programme of the Heilbronn Institute.

The Heilbronn Institute for Mathematical Research (HIMR)

HIMR was established by the UK Government Communications Headquarters (GCHQ) to conduct research in areas of mathematics. It is a national research institute, where some of the leading mathematicians in the UK work in a highly stimulating and collaborative research environment. It partners in various activities with the Clay Mathematics Institute, the Isaac Newton Institute, and the International Centre for Mathematical Sciences. For more information about the [Heilbronn Institute](#), including its [workshops and conferences](#), [papers written](#) by its members, and current [fellows](#), please see our website at <http://heilbronn.ac.uk>.

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 external research may be in any area of mathematics and can be published in the usual way.

At any one time the Heilbronn Institute typically has over 70 members. These range from distinguished senior visiting academics to postdoctoral researchers holding Heilbronn Research Fellowships. Currently, around 50 Research Fellows are supported, for between one and seven years, and we currently support over 80 PhD students. Since it was established in 2005, over 200 mathematicians have been members of the Institute, including over 100 Research Fellows

The Chair of HIMR, responsible for the external research and associated activities, is Professor Catherine Hobbs. Michael Groves, the Head of HIMR, is responsible for the internal research programme.

Research Environment

You will join a cohort of around 50 Heilbronn Research Fellows that includes some of the leading early-career mathematicians in the UK. Fellows are part of the community in their host department, where they carry out their external research work. They are encouraged to take a full part in the life of their host department including participating in (and organising) seminars.

The internal research programme is determined by the Head of HIMR in conjunction with GCHQ. Fellows are presented with a range of challenging mathematical problems and are given the facilities and support to contribute to one or more of them, frequently as part of a collaborative team.

HIMR Fellows are offered training and development opportunities that fit their career ambitions, research needs and personal development requirements.

Expert mentoring will be provided by the host department, with a national programme of career development events overseen by our Associate Chairs, who are based at the University of Bristol, Imperial College London, and The University of Manchester.

HIMR supports a large number of conferences, workshops and other research events, including our flagship event, the Annual Conference, and the Heilbronn Distinguished Lecture Series. For more information, see: <https://heilbronn.ac.uk/events/>

Equal Opportunities

Diversity and inclusion are critical to the vision and mission of the Heilbronn Institute. We seek a truly diverse workforce which includes diversity in every sense of the word: those with different backgrounds, ages, ethnicities, gender identities, sexual orientations, ways of thinking and those with disabilities or neurodivergent conditions. We therefore welcome and encourage applications from everyone, including those from groups that are currently under-represented in mathematics. For more information, please see <https://heilbronn.ac.uk/diversity/>

Supporting you as a HIMR fellow

Our host universities are all committed to supporting our fellows in achieving a healthy professional-personal balance. They all have policies to help you balance your career with life outside work, offering support and flexibility at all stages of your life. This includes, leave and absence and policies around home and family life, including generous maternity, paternity, adoption and surrogacy leave options.

Facilities and Research Support

Excellent facilities are provided for both the external and the internal research. In addition to workspace at the Institute, Fellows have a desk in their host university.

Fellows work flexible hours, and for the most part can split their time between internal and external research in a way that suits them best. While internal research must be done in person in the appropriate secure facilities close to your host university, external work can be done remotely or in person as preferred. However, fellows will get the most out of their dual role if they are able to interact with colleagues in their host department.

The Chair holds a generous budget for research activities such as travel and organising workshops and visits by collaborators from other institutions. Fellows are given research expenses of up to £2.5K pa and they are able to apply for further sums from the Chair's fund for special projects. They may also apply for external funding, where eligible.

Terms and Conditions

Terms and conditions of employment for Research Fellows will be based on those applicable to fixed-term externally funded researchers in the employed host institution.

Our Fellowships are **3 years fixed term**, with a preferred start date of 1 October 2025. The salary range is **£45,232-£50,474** depending on previous experience, with London weighting where appropriate. This includes a salary supplement of £3.5K pa, in recognition of the distinctive nature of these Fellowships. Payment of this supplement is conditional on a PhD thesis having been accepted in final form.

In addition, a fund of £2.5K pa to pay for research expenses will be available to each Fellow.

Some of our Fellowships are funded through the UKRI/EPSRC 'Additional Funding for Mathematical Sciences Programme'.

Intellectual Property Rights

The Institute acquires all IPR in the internal research. Rights in the external research are subject to the normal arrangements between the host university and its employees, subject to GCHQ acquiring a royalty-free license on any exploitable invention.

Security

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 and not discussed, even in general terms, elsewhere, without explicit GCHQ permission.

It is a condition of employment that Fellows acquire, and continue to qualify for, a national security clearance (Developed Vetting) at the appropriate level from GCHQ; they are subject to provisions of the Official Secrets Act and include restrictions on travel to certain countries. UK resident UK nationals will normally be able to meet this condition: other potential applicants are welcome to contact the Heilbronn Manager at hmr-recruitment@bristol.ac.uk to discuss eligibility.

Information on the process can be found on the UK Government security vetting website:

<https://www.gov.uk/government/publications/demystifying-vetting>

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

Teaching

These Fellowships are research positions, and as such there are no formal specified teaching duties required of the role-holder. However, other commitments permitting, the role-holder may be offered development opportunities to undertake activities such as teaching on undergraduate programmes and/or supervising final year projects, as appropriate.

Relationships

Line manager: Local Associate Chair or as confirmed by host institution

Informal Enquiries

Potential applicants with enquiries about the fellowships are welcome to contact the Heilbronn Manager at himr-recruitment@bristol.ac.uk.

PERSON SPECIFICATION

Relevant Experience, Skills and Knowledge

Essential

- Experience of independent research in Algebra, Algebraic Geometry, Combinatorics, Computational Statistics, Data Science, Number Theory, Probability, and/or Quantum Computing, or related areas, interpreted broadly.
- A publication record commensurate with career stage.
- Self-motivation, initiative, and organisational skills in planning and carrying out research.

Desirable

- Computer programming experience, any language

Relevant Qualifications

Essential

- PhD or equivalent doctoral qualification in a relevant subject by the time you start this fellowship, or very close to completion.

Communication and Interpersonal Skills

Essential

- Excellent written and oral technical communication skills in English.
- Proven ability to use initiative to efficiently plan, optimise and progress research and communicate findings
- Ability to work independently and as part of a team – including interacting effectively with diverse teams
- Communicate effectively and build positive working relationships with colleagues.
- Collaboration
- Networking

Additional Criteria

Essential

- Due to the nature of the Heilbronn Institute's work, Fellows will be required to obtain and maintain a national security clearance (Developed Vetting) at the appropriate level. UK resident UK nationals will normally be able to meet this condition: other potential applicants are welcome to contact the Heilbronn Manager at himr-recruitment@bristol.ac.uk to discuss eligibility before applying.