



1 Advertisement

Post Title: Research Fellow in Mathematics

School/department: Mathematics

Hours: Full time. Requests for [flexible working](#) options will be considered (subject to business need).

Contract: 18 months fixed term until 4th April 2024 (flexible)

Reference: 8836

Salary: starting at £34,304 to £40,927 per annum

Placed on: 09 June 2022

Closing date: 04 July 2022. Applications must be received by midnight of the closing date.

Expected Interview date: TBC

Expected start date: 03 October 2022 (flexible)

The department of mathematics at the University of Sussex offers a fixed term Postdoctoral position in Probability and Mathematical Physics. Initially, the position is for 18 months but may be extended subject to additional funding.

We welcome candidates from these areas broadly, but candidates with an interest in random matrix theory, interacting particle systems and exactly solvable models are particularly encouraged to apply.

The post is part of a larger project funded by the Royal Society aiming to understand the relation between eigenvalues of random matrices and recent developments in probability theory related to e.g. Gaussian free fields.

The post-holder will work closely with the principal investigator Dr. Nick Simm in the Probability and Statistics research group and will benefit from recent growth in random matrix theory and probability within the department.

The post comes with a generous travel bursary that will enable the successful candidate to participate in international conferences and summer schools.

Prospective candidates should hold a PhD in Mathematics or Theoretical Physics, or be in the final stages of writing up their PhD thesis and have submitted by the start date of the position.

Examples of topics that are pertinent to this job include:

- Random matrices broadly defined (e.g. to include two dimensional Coulomb gases, Wigner matrices, models in integrable probability).
- Determinantal or Pfaffian structures in probabilistic models.

- Orthogonal polynomials and their asymptotic analysis using tools such as the Riemann-Hilbert problem.

Candidates should include in their application the following:

- Academic CV
- Official academic transcripts
- Contact details for two suitable referees
- A personal statement (500 words maximum) outlining their research interests and their research experience to date
- Application form

Please contact me at n.j.simm@sussex.ac.uk for informal enquiries.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

Please note that this position may be subject to [ATAS clearance](#) if you require visa sponsorship.

For full details and how to apply see our [vacancies page](#)

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

2. The School / Division

Please find further information regarding the school/division at <http://www.sussex.ac.uk/math/>

3. Job Description

Job Description for the post of: Research Fellow

Department: Mathematics

Section/Unit/School: Mathematical and Physical Sciences

Location: Pevensey III

Grade: 7

Responsible to: Principal Investigator through to Head of School

Responsible for:

Research Fellow I is an early career-grade research position. Post-holders will be expected to contribute to the activity of the research team, and also to develop their research skills with support from more experienced members of staff.

PRINCIPAL ACCOUNTABILITIES

1. To engage in individual and/or collaborative research activity resulting in high-quality publications; and to develop research funding and knowledge exchange income individually or in collaboration with others, as appropriate, depending on the size and scope of the bid.
2. To contribute to School teaching activities.

KEY RESPONSIBILITIES

1. Research, Scholarship & Enterprise

1. Develop research objectives and proposals for own or joint research, at acceptable levels, with assistance if required.
2. Conduct research projects individually and in collaboration with others.
3. Analyse and interpret research findings and draw conclusions on the outcomes.
4. Produce high-quality research outputs for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and contribute to the School's REF submission at acceptable levels of volume and academic excellence.
5. Contribute to the preparation of proposals and applications to external bodies, for example for funding purposes.
6. Individually or with colleagues, explore opportunities for enterprise activity, knowledge exchange income and/or consultancy, where permissible.
7. Build internal contacts and participate in internal networks and relevant external networks in order to form relationships and collaborations.
8. Continually update knowledge and understanding in field or specialism, and engage in continuous professional development.

2. Teaching & Student Support

1. Undertake teaching duties, if required.
2. Assist in the assessment of student knowledge and supervision of student projects if required.
3. Assist in the development of student research skills, for example as part of a postgraduate supervision team.

3. Contribution to School & University

1. Attend and contribute to relevant School and project meetings.
4. Undertake additional duties, as required by the Principal Investigator and/or Head of School.

Role-specific duties

The post holder will be expected to carry out research in the general area of random matrix theory or related areas of statistical mechanics.

This Job Description sets out current duties of the post that may vary from time to time without changing the general character of the post or level of responsibility entailed.

INDICATIVE PERFORMANCE CRITERIA

- A PhD or equivalent scholarly or relevant professional activity
- Pursuing a line of independent research within a research group.
- Publishing research (either from a recently completed PhD or new original research).
- Other forms of externally recognised professional practice of creative output of a standing equivalent to regular publication of original research.
- Initiating, developing or participating in links between the University and external bodies such as business and industry, the professions, community organisations and policy-makers.
- Evidence of successful engagement in teaching or supervision.

PERSON SPECIFICATION

ESSENTIAL CRITERIA

1. Normally educated to doctoral level, or other equivalent qualification, or appropriate level of experience, as appropriate to the discipline (see role-specific criteria below).
2. Evidence of engagement in high-quality research activity.
3. Excellent presentation skills, with the ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.
4. Ability to work individually on own initiative and without close supervision, and as part of a team.
5. Ability to exercise a degree of innovation and creative problem-solving.
6. Excellent organisational and administrative skills.
7. Ability to prioritise and meet deadlines.
8. Excellent IT skills.

ESSENTIAL ROLE-SPECIFIC CRITERIA

SKILLS / ABILITIES

	Essential	Desirable
Experience with random matrices or related areas		X
Expertise in Gaussian processes and central limit theorems		X
Knowledge / expertise on Riemann-Hilbert problems		X
Expertise in orthogonal polynomials / integrable systems / integrable probability		X
Ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences and collaborators	X	

Ability to work independently on own initiative and without close supervision, and as part of a team	X	
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KNOWLEDGE

	Essential	Desirable
The ability to exercise a degree of innovation and creative problem-solving	X	
Excellent IT skills		X

EXPERIENCE

	Essential	Desirable
Independent researcher	X	
Publications in high-quality impact journals	X	
Ability to work across several disciplines		X
Evidence of successful engagement in teaching or supervision		X

QUALIFICATIONS

	Essential	Desirable
PhD in Mathematics (or final stages), or relevant discipline	X	

PERSONAL ATTRIBUTES AND CIRCUMSTANCES

	Essential	Desirable
Ability to work in a team and make substantial contributions	X	
Excellent presentation skills	X	
Organisational skills		X

Ability to prioritise and meet deadlines	X	
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DESIRABLE CRITERIA

1. Emerging track record of high-quality publications in reputable journals and other appropriate media of similar standing.
2. Experience of generating research or knowledge exchange income.