



| | | | |
|---------------------------|---------------------------|-----------------------------|--|
| Job title | Research Associate/Fellow | Job family and level | Research & Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed) |
| School/ Department | Mathematical Sciences | Location | University Park Campus |

Purpose of role

The purpose of this role is to carry out mathematical and theoretical physics research related to the EPSRC project “Statistical Theory of Controlled Quantum Dynamics” (EP/T022140/1).

The researcher will be an integral part of an interdisciplinary team based in the School of Mathematical Sciences and the School of Physics and Astronomy. We seek a motivated, skilled and highly independent researcher to complement our team, who will actively contribute to the research activities at the overlap of the broad areas of quantum information, statistics and metrology, quantum open systems and non-equilibrium dynamics, and quantum control.

The researcher will be responsible for writing up their work for publication and will have the opportunity to use their initiative and creativity to identify areas for research, develop research methods and extend their research portfolio.

| | Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role) | % time per year |
|---|--|------------------------|
| 1 | <p>Research</p> <ul style="list-style-type: none"> ▪ Undertake original research of international excellence. ▪ Develop research objectives and proposals for own and/or collaborative research area. ▪ Plan and conduct research using recognised approaches, methodologies and techniques within the research area. ▪ Collaborate with academic colleagues on areas of shared interest for example, collaborative or joint research projects. ▪ Plan and manage own research activity and resolve problems, if required, in meeting own/team research objectives and deadlines in collaboration with others. ▪ Identify opportunities and assist in writing bids for research grant applications. | 80% |
| 2 | <p>Engagement, Communication and Dissemination</p> <ul style="list-style-type: none"> ▪ Analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area. ▪ Prepare papers for publication in leading journals and/or contribute to the dissemination at national/international conferences, workshops and meetings resulting in successful research outputs. | 15% |

| | | |
|---|---|----|
| | <ul style="list-style-type: none"> ▪ Provide support, guidance and supervision to other staff, where appropriate in own area of expertise. | |
| 3 | <p>Project Administration</p> <ul style="list-style-type: none"> ▪ Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes. ▪ Co-ordinate the operational aspect of research networks, for example, arranging meetings and updating web sites etc and contribute to collaborative decision making with colleagues in area of research. ▪ Utilise and contribute to organising research resources and facilities and workshops as appropriate. | 5% |

Person specification

| | Essential | Desirable |
|--|---|---|
| Skills | <ul style="list-style-type: none"> ▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. ▪ Ability to creatively apply relevant research approaches, models, techniques and methods. ▪ Ability to build relationships and collaborate with others. ▪ The ability to work independently and as part of a multidisciplinary and multicultural team | <ul style="list-style-type: none"> ▪ Ability to foster a research culture and commitment to learn in others. |
| Knowledge and experience | <ul style="list-style-type: none"> ▪ Strong track record in at least one of the areas or their overlap: statistical methods in quantum information, quantum open systems and nonequilibrium dynamics, quantum control, statistical mechanics, quantum many-body systems. ▪ Experience in use of research methodologies and techniques to work within the project area | <ul style="list-style-type: none"> ▪ Background knowledge in statistics and probability and/or numerical methods ▪ Previous success in gaining support for externally funded research projects. ▪ Networking, actively engaging with and valuing other areas and diverse groups. |
| Qualifications, certification and training (relevant to role) | <p>PhD or equivalent, in a relevant branch of mathematics, physics or a closely related discipline</p> <p>OR near to completion of a PhD.</p> | |



The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women's careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

