



Job title	Research Fellow (Title will be 'Research Associate' where an appointment is made before PhD is completed.)	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	School of Physics and Astronomy	Location	University Park Campus

Purpose of role

The purpose of this role will be to plan and conduct theoretical and/or computational research in quantum many-body systems and quantum computation, to disseminate the results of this research, and to collaborate with others in the group and outside. The research will concern quantum many-body dynamics formulated in terms of quantum circuits, including: the construction of analytically solvable models, the numerical simulations of circuit dynamics, and their implementation on quantum simulation platforms. The role holder will also 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	Carry out research <ul style="list-style-type: none"> To plan and conduct research using recognised approaches, methodologies and techniques within the research area. To manage own research activity and resolve problems, if required, in meeting research objectives and deadlines. 	70%
2	Disseminate research <ul style="list-style-type: none"> To write up research work for publication. To contribute to the dissemination of research results at conferences. 	10%
3	Build research relationships <ul style="list-style-type: none"> To build relationships with both internal and external contacts in order to exchange information, to form relationships for future collaborations, and to identify potential opportunities for collaboration. To collaborate with academic colleagues on areas of shared interest. 	10%
4	Support other group members <ul style="list-style-type: none"> Provide support, guidance and supervision to other members of the research group, where appropriate, in own areas of expertise. 	10%

Person specification

	Essential	Desirable
Skills	<p>Ability to creatively apply relevant research approaches, models, techniques and methods.</p> <p>Excellent oral and written communication skills, including the ability to communicate complex information with clarity.</p> <p>Ability to build relationships and collaborate with others.</p>	<p>Ability to foster a research culture and commitment to learn in others.</p>
Knowledge and experience	<p>Strong record of research in theoretical condensed matter physics, quantum computing, or a closely related field.</p>	<p>Experience of developing new approaches, models, techniques, or methods in research area.</p> <p>Expertise in the specific methods of the research topics.</p> <p>Expertise in numerical methods, particularly tensor-networks</p>
Qualifications, certification and training (relevant to role)	<p>Ph.D. (or equivalent) in physics or mathematics, OR Near to completion of Ph.D. (or equivalent) in physics or mathematics</p>	



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

