



Job title	Research Associate / Fellow - Hybrid Magnetic Systems	Job family and level	Research and Teaching Level 4 (Level 4 Research Career Training Grade if appointment made before PhD completion)
School/ Department	School of Physics and Astronomy	Location	School of Physics and Astronomy Building, University Park Campus

Purpose of role

The person appointed to the role will develop realistic computer simulation tool supporting design and optimisation of components needed to develop and commercialise atom-based quantum sensors for innovative applications in computing, sensing and timing.

This role will involves developing inverse methods and optimisation techniques, including the use of Green functions, to design state-of-the-art components and sub-systems for the quantum sensors and to integrate them into functioning engineered sensor systems and environments. There will be a strong focus on the optimisation of hybrid magnetic systems comprising passive and active subsystems.

The post will also involve systems engineering and simulation of prototype quantum sensor systems in collaboration with our academic and industry partners, engineering colleagues, and a range of end users. Collaboration with experimentalists, medical physicists, neuroscientists, researchers from other disciplines, and industry partners will be a vital part of the role.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	<ul style="list-style-type: none"> To take a leading role in the research activities described above under the supervision of academic staff in the School of Physics and Astronomy. 	70 %
2	<ul style="list-style-type: none"> To write up this research work for publication and contribute to dissemination at national/international conferences, resulting in successful research outputs. 	15 %
3	<ul style="list-style-type: none"> To build relationships with both internal and external collaborators in order to exchange information, develop collaborative projects and identify potential opportunities for future collaboration. 	15 %

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> • Computer simulation/modelling of complex and electromagnetic systems including optimisation and Green function modelling of coupled active and passive electromagnetic systems. • Able to work within industry standards and specifications. • Strong interest in commercialising fundamental science and in developing new products and industries. 	<ul style="list-style-type: none"> • Knowledge of relevant health & safety and environmental issues
Knowledge and experience	<ul style="list-style-type: none"> • Demonstrable commitment to continuing professional development. • Willingness to undertake appropriate further training and to adopt new procedures as and when required. 	<ul style="list-style-type: none"> • Knowledge of Optimisation of electromagnetic fields for quantum technologies • Collaboration with industry or technology/knowledge transfer
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> • Undergraduate degree (BSc/MSci) in Physics, Engineering, or appropriately related discipline. • PhD (or be close to completion) in Theoretical Physics, Applied Physics, Electromagnetics, or Engineering. 	
Statutory, legal or special requirements	<ul style="list-style-type: none"> • Commitment to observing Equality & Diversity policies at all times. • Commitment to maintain confidentiality at all times. 	



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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

