



<b>Job title</b>	Research Associate / Fellow – Imaging with quantum sensors	<b>Job family and level</b>	Research and Teaching Level 4 (Level 4 Research Career Training Grade if appointment made before PhD completion)
<b>School/ Department</b>	School of Physics and Astronomy	<b>Location</b>	School of Physics and Astronomy Building, University Park Campus

## Purpose of role

The person appointed to the role will develop a new type of scanning system that uses quantum sensors of magnetic field to image and characterise low-conductivity materials. The scanner will have a range of potential applications including in security and healthcare.

This role will involve the computer simulation, optimisation, construction and experimental validation of functional imaging systems and environments that exploit the ultra-high-sensitivity of optically-pumped magnetometers to detect and map the electrical characteristics of objects with low electrical conductivity. There will be a strong focus on the optimisation of sensor deployment and image reconstruction.

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

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

## Person specification

	Essential	Desirable
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Computer simulation/modelling and the construction/validation of imaging systems, ideally involving quantum sensors, or related quantum technologies.</li> <li>• Willing and able to work with external security-focused organisations.</li> <li>• Able to work within industry standards and specifications.</li> <li>• Strong interest in commercialising fundamental science and in developing new products and industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge of relevant health &amp; safety and environmental issues.</li> </ul>
<b>Knowledge and experience</b>	<ul style="list-style-type: none"> <li>• An outstanding educational profile up to and including a first degree in Physics or Engineering.</li> <li>• PhD (or be close to completion) in Theoretical Physics, Applied Physics, Electromagnetics, or Engineering.</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge of quantum technologies, image reconstruction, or design optimisation.</li> <li>• Collaboration with industry or technology/knowledge transfer.</li> </ul>
<b>Qualifications, certification and training (relevant to role)</b>	<ul style="list-style-type: none"> <li>• Demonstrable commitment to continuing professional development.</li> <li>• Willingness to undertake appropriate further training and to adopt new procedures as and when required.</li> </ul>	
<b>Statutory, legal or special requirements</b>	<ul style="list-style-type: none"> <li>• Commitment to observing Equality &amp; Diversity policies at all times.</li> <li>• Commitment to maintain confidentiality at all times.</li> </ul>	



## 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



