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| Last updated: | February 2023 |  |  |  |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow in experimental quantum gravity physics** | | |
| School/Department: | Physics and Astronomy/Quantum Light Mechanics | | |
| Faculty: | Engineering and Physical Science | | |
| Career pathway: | Education, research and enterprise | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Group leader, Macroscopic Quantum Systems and Gravity (level 7) | | |
| Posts responsible for: | Some supervision of junior research staff (undergraduates, and graduate students) | | |
| Post base: | Office-based | | |

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| Job purpose |
| To undertake research in accordance with the specified research project under the supervision of the award holder. |

| Key accountabilities/primary responsibilities | | % Time |
| --- | --- | --- |
|  | To develop and carry out research on the specified research project | 60 % |
|  | Regularly disseminate findings by preparing publication materials for referred journals, presenting results at conferences, or exhibiting work at other appropriate events. | 10 % |
|  | Contribute to the writing of bids for research funding. | 5 % |
|  | Investigate models and approaches to test and develop them. | 5 % |
|  | Collaborate/work on original research tasks with colleagues in other institutions. | 5 % |
|  | Supervise the work of junior research staff. | 10 % |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |

| Internal and external relationships |
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| Direct responsibility to holder of research award or academic supervisor.  May have additional reporting and liaison responsibilities to external funding bodies or sponsors.  May be asked to serve on a relevant Academic Unit committee, for example research committee.  Collaborators/colleagues in other work areas and institutions. |

| Special Requirements |
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| To attend national and international conferences for the purpose of disseminating research results.  *Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.* |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in experimental quantum physics or electronics or a related topic.  Detailed understanding and knowledge of experimental methods, as well as calculation techniques for gravity and quantum physics in the application to table-top experiments (can be analogue systems or quantum systems in non-inertial reference frames).  Expertise in experiments in one of the following topics: quantum optics; entangled states; classical electromagnetic wave physics and AC circuits; basic electronics in RF circuits; atomic, molecular and optics (AMO) physics, circuit QED, microwave quantum circuits and mechanics, levitated mechanical systems; cryogenic experiments, superfluid helium, gravity or quantum mechanics experiments including analogues; experimental quantum optics  PhD level research experience in experimental or theoretical physics | Expertise in one or more of the following fields, but not limited to: quantum optics experiments, Bell tests, Leggett-Garg inequalities, levitated optomechanics, homodyne detection, squeezed light, cryogenics optics, vibration isolation, or matterwave interferometry  Independent theoretical or experimental work on quantum optics with photons or other quantum systems.  Experience in quantum optics and metrology experiments in general or in one or more of the following fields: microwave circuit mechanics, noise cancellation, ion trapping, optical trapping, optical clocks.  Experience or willingness of supervising undergraduate students and supervision of research projects in the lab.  Ability to publish in high impact journals |  |
| Planning and organising | Able to organise own research activities to deadline and quality standards |  |  |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them  Able to develop original techniques/methods |  |  |
| Management and teamwork | Able to supervise work of junior research staff, delegating effectively  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development |  |  |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in leading peer-viewed journals  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes |  |  |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Proactive in promoting a working environment that is inclusive and engaging; recognising the value diversity brings. | Experience of working with industrial and commercial partners |  |
| Special requirements: | Able to attend national and international conferences to present research results |  |  |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work | N/A |  |  |
| Extremes of temperature (eg: fridge/ furnace) | N/A |  |  |
| ## Potential for exposure to body fluids | N/A |  |  |
| ## Noise (greater than 80 dba - 8 hrs twa) | N/A |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: | N/A |  |  |
| Frequent hand washing | N/A |  |  |
| Ionising radiation | N/A |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling | N/A |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) | N/A |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) | N/A |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) | N/A |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling | N/A |  |  |
| Repetitive crouching/kneeling/stooping | N/A |  |  |
| Repetitive pulling/pushing | N/A |  |  |
| Repetitive lifting | N/A |  |  |
| Standing for prolonged periods | N/A |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) | N/A |  |  |
| Fine motor grips (eg: pipetting) | N/A |  |  |
| Gross motor grips | N/A |  |  |
| Repetitive reaching below shoulder height | N/A |  |  |
| Repetitive reaching at shoulder height | N/A |  |  |
| Repetitive reaching above shoulder height | N/A |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public | x |  |  |
| Lone working | x |  |  |
| ## Shift work/night work/on call duties | N/A |  |  |