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| Last updated: | October 2016 |

**JOB DESCRIPTION**

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| Post title: | **Research Fellow in Parahydrogen-Enhanced Nuclear Magnetic Resonance** | | |
| Academic Unit/Service: | Chemistry | | |
| Faculty: | Faculty of Natural & Environmental Sciences |  | |
| Career pathway: | ERE\* | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Research Group Supervisor | | |
| Posts responsible for: |  | | |
| Post base: | Non Office-based (see job hazard analysis) | | |

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| Job purpose |
| Experimental research on substances in parahydrogen-induced hyperpolarized spin states, including hardware and electronic design and construction, and Nuclear Magnetic Resonance experiments. |

| Key accountabilities/primary responsibilities | | % Time |
| --- | --- | --- |
|  | Development of NMR methodology, NMR and parahydrogen-enhanced NMR experiments | 65 % |
|  | NMR theory and NMR simulations | 20 % |
|  | Assistance and training of graduate and undergraduate students | 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.  The appointee will be expected to collaborate with current group members and contribute to group meetings and other discussions with research students and with Prof M. H. Levitt regarding delivery of objectives and project planning/management. |

| Special Requirements |
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| *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) in Physics or Chemistry, or other fields relevant to the project area  Experience in the design, construction, and operation of scientific instrumentation  Knowledge of the principles of NMR  Experience of advanced NMR techniques including operating and programming a NMR instrument  Knowledge parahydrogen-enhanced NMR | Experience of advanced NMR techniques  Knowledge of quantum mechanics and spin physics  Knowledge of singlet nuclear magnetic resonance  Practical and theoretical experience in hyperpolarized NMR spectroscopy, especially parahydrogen-enhanced NMR  Experience in the design, construction, and operation of scientific instrumentation | CV, references, and interview |
| Planning and organising | Ability to plan and organise practical research and the associated administrative tasks. |  | CV, references, and interview |
| Problem solving and initiative | Good problem solving abilities and good initiative. |  | CV, references, and interview |
| Management and teamwork | Good teamwork skills. |  | CV, references, and interview |
| Communicating and influencing | Ability to communicate complex information verbally and in writing. |  | CV, references, and interview |
| Other skills and behaviours |  | Creative approach to experiments with ability to develop new ideas. | CV, references, and interview |
| Special requirements |  |  |  |

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