Technical Specialist (NMR Spectroscopy)

Department: Chemistry
Hours of work: Full-Time | 37 hours a week
Contract type: Open
Salary: Grade 6 | £34,308 to £42,155 a year
Introduction

An opportunity has arisen in the Department of Chemistry for a Technical Specialist in NMR spectroscopy to provide support for a broad range of high impact biomolecular and chemical research that uses Bruker 700 and 600 MHz NMR instruments. Users of these systems include research groups interested in biomolecular structure and interactions (including protein-protein, protein-nucleic acid and protein-ligand), and synthetic organic and inorganic chemistry. This role will involve the implementation of new and existing pulse sequences for the analysis of a wide variety of samples, in particular biomolecules, and expertise in biomolecular NMR spectroscopy is required. The Department houses several other NMR spectrometers, and the role will involve some maintenance and support for these instruments.

The Department of Chemistry is one of the UK’s leading Chemistry departments and we are renowned internationally for our research. This is combined with a commitment to teaching and outstanding student satisfaction, and we have been recognised consistently for our family-friendly policies and are proud of our Athena SWAN Gold Award: https://www.york.ac.uk/chemistry/ed/. The University is a founding signatory of the Technician Commitment and the Department is committed to increasing the visibility, recognition, career development and sustainability of technicians: https://www.york.ac.uk/staff/working/tech-york/.

We strive to provide a working environment which allows all staff and students to contribute fully, flourish, and excel. We aim to ensure that there is a supportive and egalitarian culture across all staff groups and levels. We promote good practice and a strong culture of equality in higher education. Further information can be found on our website.

Main purpose of the role

In the first instance, the Technical Specialist will have duties that include:

- assisting users of the 600 and 700 MHz NMR spectrometers in the running of experiments for the characterisation of biomolecular and chemical samples
- remaining up-to-date with the latest experimental developments and implementing the use of new NMR pulse sequences
- supporting the operation of the 600 and 700 MHz NMR spectrometers and installation of new instrumentation
- providing training for researchers to work on these systems, and recording spectra where necessary
- providing assistance in the filling of magnets with liquid helium and nitrogen
- ensuring safe working practices are followed
- undertaking other duties as required to support the NMR service

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

- Take a lead in providing operational support for NMR spectroscopy, including the smooth running, maintenance and upkeep of NMR-related equipment
- Design NMR experiments as required to characterise biomolecular and chemical samples.
- Diagnose faults and repair NMR equipment, arranging contractor visits as required. Liaise with staff and external service providers to ensure that detailed technical requirements are understood in the repair and maintenance of high-field NMR spectrometers.
- Collaborate with colleagues to ensure the appropriate data is delivered to a high standard.
- Manage, review and implement procedures to maximise the efficient running of the NMR service under the direction of the Senior Technical Specialist.
- Establish and maintain a safe and compliant working environment. Understand, promote and apply relevant COSHH/risk assessments and departmental health and safety protocols ensuring procedures are followed at all times. Take on specific safety roles where required.
- Use appropriate computational methods to analyse the data generated in the projects to agreed timeframes; providing appropriate interpretation.
- Negotiate with suppliers for items, including specialist parts and equipment.
- Present technical information within your own area of expertise at meetings, conferences etc. and take part in discussions to inform on scientific advancement.
- Draft and provide inductions, training and demonstrations of NMR spectroscopic techniques.
- Maintain up to date knowledge of NMR spectroscopy, in particular of biological molecules, investigate and propose improvements to services, advocating best working practice.
- To actively demonstrate a commitment to professional development by continuing to advance knowledge, understanding and competencies.

*The above list is not exhaustive. The role holder may be required to undertake other duties within the scope and grading of the role.*
## Person specification

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<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tr>
<td>First or upper second class degree in Chemistry, Physics, Biochemistry or other analytical science, or equivalent relevant experience</td>
<td>Essential</td>
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<td>PhD or equivalent experience, either in Chemistry, Physics or Biochemistry with firm practical background in NMR spectroscopy</td>
<td>Desirable</td>
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<tr>
<td>RSci/REng, or willingness to work towards, or equivalent professional registration</td>
<td>Essential</td>
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<td>NEBOSH/IOSH</td>
<td>Desirable</td>
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### Knowledge

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<td>Knowledge of the day-to-day running of a high field multi-user NMR system and theoretical and practical knowledge of the associated techniques</td>
<td>Essential</td>
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<td>Understanding of the practical applications of NMR spectroscopy and how this may be used to study biomolecular and chemical samples</td>
<td>Essential</td>
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<td>An understanding of the operation of a NMR research laboratory, and an awareness of the associated health and safety issues</td>
<td>Essential</td>
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<td>Knowledge and understanding of scientific research methodology</td>
<td>Essential</td>
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<td>Thorough, up-to-date theoretical and practical knowledge of the techniques associated with a multi-user, cross-discipline NMR service</td>
<td>Essential</td>
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### Skills, abilities and competencies

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<td>Proven track record in the application of NMR spectroscopy and the operation/maintenance of associated equipment</td>
<td>Essential</td>
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<td>Proven ability to work independently with initiative, using problem solving and analytical skills</td>
<td>Essential</td>
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<td>Excellent IT and analytical skills using a range of specialist software, including advanced NMR data analysis software</td>
<td>Essential</td>
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<td>Ability to present complex ideas in a clear and concise manner</td>
<td>Essential</td>
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<td>Ability to analyse and interpret complex data and to design and deliver training on NMR spectroscopy</td>
<td>Essential</td>
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**Able to undertake triple resonance experiments for structure, function and dynamic analysis of proteins and other biological molecules** | Desirable
---|---
**Ability to contribute to specification documentation for the procurement and service of the complex equipment** | Desirable
**Ability to identify trends in area of specialism and discuss with management** | Essential
**Competent in statistical and mathematical methods for analysis, and able to provide scientific data in written format for publications** | Essential

**Experience**

**Demonstrable in-depth experience of working with NMR spectroscopy in an academic or industrial research environment** | Essential
**Experience of working on own initiative** | Essential
**Experience of training others in the use of NMR equipment and/or analysis of NMR data** | Desirable
**Evidence of implementing, acquiring and analysing triple-resonance NMR experiments for biological research** | Desirable
**Experience of solid-state NMR spectroscopy techniques** | Desirable
**Preparing of NMR data for publication** | Desirable

**Personal Attributes**

**Actively demonstrate commitment to professional development, advance knowledge, understanding & competencies** | Essential
**Flexible attitude towards work, willingness to respond to time led demands** | Essential
**Good interpersonal skills and the ability to communicate effectively with staff, students and external stakeholders** | Essential
**Able to maintain a positive, open attitude toward others, to value and support colleagues. The ability to respond and integrate change and to demonstrate personal resilience** | Essential
**Commitment to equality and diversity and an inclusive workplace** | Essential