Technical Specialist in Laser Spectroscopy
Chemistry

Closing date: 25 March 2019
Interview date: 26 April 2019
Vacancy reference: 7373
A Technical Specialist in Laser Spectroscopy is sought to support exciting developments in Physical Chemistry at the University of York. The section undertakes internationally-leading research in areas spanning ultrafast multidimensional spectroscopy, time-resolved electron diffraction, liquid and solution dynamics, novel gas-phase photochemical studies and photochemical NMR spectroscopy. The successful candidate will support this activity alongside working with Physical Chemistry academic staff to establish a new multi-user laser spectroscopy and photochemistry facility.

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/

As a Department we strive to provide a working environment which allows all staff and students to contribute fully, to flourish, and to excel. We aim to ensure that there is a supportive and egalitarian culture at all levels and across all staff groups. We promote good practice and a strong culture of equality in higher education. Further information can be found within this brief and on our website: www.york.ac.uk/chemistry/
Main purpose of the role

To be the lead technician supporting the research activities of the Physical Chemistry Section by proactively providing logistical, scientific and technical support to academic and research staff. To contribute towards the objectives of the section through application of sound scientific methodology ensuring that specialist knowledge and skills (including research methods and techniques) are kept up to date. A major aspect of this role will be to support work to establish a new multi-user laser spectroscopy and photochemistry facility.

To manage the day-to-day organisation and operation of an existing suite of specialised laser spectroscopy laboratories (including ultrafast lasers), vacuum systems and associated support laboratories. Proactively providing expertise in experimental and technical aspects of laser spectroscopy with particular attention paid to assistance in developing and performing experiments and assisting with instrument development. Support multiple research projects: delivering agreed objectives with the appropriate academic member of staff, updating them on progress as required. Evaluate new methods, techniques and results reported in the literature; share learning with researchers in the section and act as a resource for them.

To act as a point of contact for all equipment in the area and to have a joint responsibility for the health and safety within the laboratory providing guidance, training and theoretical/technical support to students, staff and external stakeholders.

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

- Take a lead in a laser spectroscopy using refined skills and knowledge to interpret and implement the technical specialist requirements of experimental work.
- Design, develop and construct scientific experiments and equipment using specialist relevant knowledge and skills.
- Diagnose faults, maintain/repair equipment and systems of a specialist nature, arranging contractor visits as required including taking responsibility for laser alignment and maintenance; advising on safe operation of experiments.
- Use appropriate computational methods to analyse data generated, to agreed timeframes, providing interpretation.
- Present technical information within own area of expertise at meetings, conferences etc. and take part in discussions to inform on scientific advancement.
- For example reporting of work internally to help prepare reports/applications to external funding bodies and/or publications as and when required.
- Draft and provide inductions, training and demonstrations of specialist techniques ensuring compliance with safety and regulatory guidelines to staff, students and external stakeholders.
- Establish and maintain a safe and compliant working environment (for example PAT, chemical and waste disposal). Understand, promote and apply relevant laser safety, COSHH, risk assessments and departmental health and safety protocols, ensuring procedures are followed at all times.
- To collaborate and work alongside colleagues to plan, organise and control activities so that laser spectroscopy is delivered to a high standard including ensuring smooth running of the suite of specialist laser laboratories and associated equipment.
• To manage, review and implement appropriate procedures to maximise the efficient running of physical chemistry laboratories under the direction of the management lead. For example operation (and maintenance) of laser equipment, offering advice on lasers, including ultra-fast lasers, other equipment and techniques available within the laboratory.

• Liaise with staff and external service providers to ensure that detailed technical requirements are understood in the repair and maintenance of space occupied by the Physical Chemistry Section.

• Management of one or more budgets, monitoring resource usage, source and negotiate with suppliers for a range of items, including specialist parts and equipment.

• For example identify gaps in the suite of equipment and seek information from external companies and colleagues on suitable solutions.

• Maintain up to date knowledge of the field, investigate and propose improvements to services, advocating best practice.

• To actively demonstrate a commitment to professional development by continuing to advance knowledge, understanding and competencies.
## PERSON SPECIFICATION

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<tr>
<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>Degree or equivalent in appropriate science discipline or appropriate experience</td>
<td>Essential</td>
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<tr>
<td>Higher professional qualification such as R/CSci/R/CEng or willingness to work towards these</td>
<td>Essential</td>
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<tr>
<td>PhD or equivalent in appropriate science discipline or appropriate significant experience</td>
<td>Desirable</td>
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<tr>
<th>Knowledge</th>
<th>Essential / Desirable</th>
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<tr>
<td>In-depth and current theoretical and practical knowledge of laser spectroscopy</td>
<td>Essential</td>
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<td>Broad understanding and in depth knowledge of physical chemistry and the relevant safety legislation and regulations including working with lasers and high vacuum systems</td>
<td>Essential</td>
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<td>Knowledge of the management of physical chemistry laboratories</td>
<td>Essential</td>
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<th>Skills, abilities and competencies</th>
<th>Essential / Desirable</th>
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<tr>
<td>Proven track record in the application of laser spectroscopy skills</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>Ability to present complex ideas in a clear and concise manner and communicate with students, staff and external stakeholders</td>
<td>Essential</td>
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<td>Excellent IT and analytical skills using a range of specialist software where required</td>
<td>Essential</td>
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<td>Competent in the operation and maintenance of equipment in physical chemistry/laser laboratories</td>
<td>Essential</td>
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<td>Ability to analyse and interpret complex data and to design and deliver training on laser spectroscopy</td>
<td>Essential</td>
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<td>Competent in statistical and mathematical methods for analysis and able to provide scientific data in written format for publications</td>
<td>Essential</td>
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<td>Ability to contribute to specification documentation for the tendering and servicing of complex equipment</td>
<td>Desirable</td>
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<tr>
<td>Proven track record in the application of ultrafast laser spectroscopy skills</td>
<td>Desirable</td>
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<th>Experience</th>
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<tr>
<td>Demonstrable experience in laser spectroscopy</td>
<td>Essential</td>
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<td>Experience of training others in laboratory techniques and use of complex equipment</td>
<td>Essential</td>
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<td>Ability to apply knowledge to improve service support of physical chemistry</td>
<td>Essential</td>
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<td>Ability to work on own initiative</td>
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<tr>
<td>Experience of working in physical chemistry laboratories including use and maintenance of lasers, ultrafast lasers and related experiments</td>
<td>Essential</td>
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<td>Experience of writing reports for managers based on laser spectroscopy</td>
<td>Desirable</td>
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<td>Ability to identify trends in area of specialism and discuss with management</td>
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## Personal attributes

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<tr>
<td>Good interpersonal skills and the ability to communicate effectively with staff, students and external stakeholders</td>
<td>Essential</td>
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<td>Flexible attitude towards work, willingness to respond to time led demands</td>
<td>Essential</td>
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<td>Actively demonstrates a commitment to professional development by continuing to advance knowledge, understanding and competencies</td>
<td>Essential</td>
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<tr>
<td>A positive, open and objective attitude toward others, to value and support colleagues. The ability to respond and integrate change with minimal personal resistance and to demonstrate personal resilience</td>
<td>Essential</td>
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THE DEPARTMENT

The Physical Chemistry section comprises nine academics and undertakes internationally-leading research in areas spanning ultrafast multidimensional spectroscopy, time-resolved electron diffraction, liquid and solution dynamics, novel gas-phase photochemical studies and photochemical NMR spectroscopy. The successful candidate will support this activity alongside working with Physical Chemistry academic staff to establish a new multi-user laser spectroscopy and photochemistry facility.

The Department of Chemistry

The Department of Chemistry: [http://www.york.ac.uk/chemistry](http://www.york.ac.uk/chemistry) is one of the largest and most successful academic departments at York. The Department was placed in the top ten UK universities for Research Power by the 2014 Research Excellence Framework exercise (REF). Amongst our academic staff we have five Fellows of the Royal Society and many national and international prize winners, contributing to a dynamic and thriving department. The excellence of Chemistry at York was recognised by the outstanding 3rd place in both the 2019 Guardian and Times University League Table guides and 6th place in the 2019 Complete University Guide.

The Department has nearly 60 academic staff (including teaching-only staff), more than 600 undergraduate students, approximately 160 graduate students (mainly studying for PhDs) and over 80 research associates and fellows. The Department has a group of coherent laboratories, recently extended and modernised, which provide an excellent environment for both teaching and research; £35M has been spent on new buildings and equipment in the last seven years.

Staff in the Department of Chemistry undertake research in a wide range of fields and there are particular strengths in analytical and archaeological science, atmospheric chemistry, chemical and structural biology, green chemistry, materials chemistry, metalloproteins, organometallic and catalytic chemistry, synthetic organic chemistry and time-resolved spectroscopy.

We have nearly 30 administrative staff (including those funded externally), as well as over 50 technical staff who provide assistance in the teaching and research laboratories and maintain the workshops (mechanical, glass and electronics) supporting these activities.

The undergraduate programmes, which typically attract over 1200 applications for the ca 180 places, have a flexible, modular structure with opportunities for specialisation in environmental, industrial and medicinal chemistry. There are three-year (BSc) and four-year (MChem) courses with opportunities for students to spend a year at one of a number of overseas universities or in industry. Students rated the Department with an overall satisfaction rating of 97% in the National Student Survey 2018.

The Gold Award from Athena SWAN: [https://www.york.ac.uk/chemistry/ed/](https://www.york.ac.uk/chemistry/ed/) for promoting women in science was won by the Department of Chemistry in 2007 and renewed in 2010 and 2015. This was the first Gold award made in this scheme. The Athena SWAN Charter recognises and celebrates good employment practice for women working in science, engineering and technology (SET) in higher
THE DEPARTMENT

education and research.

The case studies on our Equality and Diversity website: https://www.york.ac.uk/chemistry/ed/fam-friendly-work/ illustrate the variety of working arrangements of staff which are supported by the Department.

The Department of Chemistry operates a set of family-friendly practices. Staff working patterns are flexible and a formal Flexitime system is also in operation. The Department has developed a maternity and paternity leave procedure to help provide support for staff and the University has a nursery https://www.york.ac.uk/nursery/.

The Department provides support for all categories of staff in their applications for promotion, role reviews, awards, prizes and rewarding excellence nominations. Staff are encouraged to attend training events and take up opportunities for professional development including those offered by the award-winning University Learning and Development Team: http://www.york.ac.uk/admin/hr/training/. The Department strives to address diversity inequalities to ensure that there is a culture that supports equality and encourages better representation throughout the Department. Support for all staff at all stages of their career is recognised as being extremely important; individuals will be allocated a specific mentor to help support them in future career development. Social events are also held regularly for members of staff.

Opportunities for employment for partners exist across the University, Science City York or within the City of York. The Department recognises that employment for partners can be an issue for new employees and will be understanding if you raise this and will do its best to help.

The Department is committed to establishing a culture of environmental good practice and all staff are asked to go about their duties in a resource efficient way and minimise impacts to the environment wherever possible.

The University has recently invested heavily in Chemistry. The Dorothy Hodgkin Building was completed in two phases. The first, housing Analytical Science and Synthetic Chemistry, opened in 2005, while the second phase housing catalytic, materials and synthetic chemistry was completed in 2012. The department is exceptionally well equipped for NMR spectroscopy and departmental instruments are housed in a purpose-built building opened in 2006, while the Wellcome-Wolfson-funded Centre for Hyperpolarisation in Magnetic Resonance (CHyM) was completed in October 2012. The Wolfson Atmospheric Chemistry Laboratories were opened in 2013 and have recently been extended (2018 and a two-storey building housing new teaching and research laboratories (to house Green Chemistry) and offices was completed in March 2014. The department has recently secured funding from the Wellcome Trust, the Wolfson Foundation, a generous alumnus and the university to acquire a 200 kV cryo-electron microscope and a building in which to house it. Construction and installation are expected in 2019.
Founded on principles of excellence, equality and opportunity for all, the University of York opened in 1963 with just 230 students. In 2018 it is the home of more than 17,000 students across more than 30 academic departments and research centres. Since opening over fifty years ago, we have become one of the world's leading universities and a member of the prestigious Russell Group.

We are consistently recognised as one of the leading Higher Education Institutes and are ranked 16th in the Times & Sunday Times league table (2017). The University of York has won six Times Higher Education (THE) Awards and five Queen’s Anniversary Prizes.

The University is proud of its association with Athena SWAN, holding 12 awards in support of gender equality, representation and success for all, with gold awards for Chemistry and Biology and a University-wide bronze award.

Of 154 universities that took part in the Research Excellence Framework (REF) in 2014, The University of York ranked 14th overall and 10th for the impact of our research. The University is consistently in the top ten UK research universities and attracts over £60m a year of funding from research alone.

Our vision is to make the University of York a world leader in the creation of knowledge through fundamental and applied research, the sharing of knowledge by teaching students from varied backgrounds and the application of knowledge for the health, prosperity and well-being of people and society.
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we’ve worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages.
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York’s bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford’s Tower and the Shambles - just a few of the many attractions.

But York isn’t just a great place to visit - it’s also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit [www.visityork.org](http://www.visityork.org) for more information on the city of York

**Shopping, culture and entertainment**

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

**Housing and schools**

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain’s best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King’s Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

**Yorkshire**

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to https://jobs.york.ac.uk
- Find this job using reference 7373
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 25 March 2019

What will I need?

We will ask you for details of:
- your employment history
- relevant qualifications
- two referees

You need to be ready to show us how you meet the requirements of the job, either in a written statement and/or by answering questions.

Help and assistance

Informal enquiries are strongly encouraged and may be directed to Professor Neil Hunt:
neil.hunt@york.ac.uk

If you have any questions about your application, contact the HR Services team:
recruitment@york.ac.uk
+44 (0)1904 324835