Research Technician for Automated Chemical Reaction Screening

Chemistry

Closing date: 4 November 2018
Interview date: tbc
Vacancy reference: 7089
INTRODUCTION

Professor Ian Fairlamb has been developing a dedicated research programme in robotics and automation for ca. 6 years. The project involves collaboration with researchers from Chemistry, Computer Science and Mathematics Departments in York, in addition to collaboration with key researchers at other Universities. The vision for our team is to develop a leading hub for reaction optimisation (and analysis) through automation, with a longer-term connection to the agrochemical and pharmaceutical sectors (who have a firm interest in reaction screening facilities).

This project represents the initiation of the vision in enabling access to our robotic systems to both internal and external research user groups, i.e. to a valuable resource in reaction automation and expertise. The appointed research technician (RT) will contribute to the day to day running of a Chemspeed ISYNTH robotic system (for which full hands-on training, from Chemspeed Technologies experts, will be provided), from both a practical (hands-on) and logistical perspective. The RT will interact closely with the Lead research technician (to be appointed), providing direct support (e.g. reaction set-up, maintenance of instrumentation, chemical procurement, routine safety checks) for researchers using the Chemspeed ISYNTH robotic system.

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 provide technical and scientific support to an EPSRC funded research project requiring the use of a Chemspeed robotic system to enhance chemical synthesis productivity and throughput; to also assist with and take responsibility for the organisation, housekeeping and operational management of the laboratory particularly in relation to the robotic system.

Key responsibilities

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

- Plan and perform experiments in accordance with the aims and objectives of the project and/or programme and use a range of scientific techniques, processes and procedures within the scope of the role
- Support University research staff in their research, through the independent application of specialist scientific techniques
- Write and maintain accurate records of the research being undertaken, using software packages such as Microsoft Word and Excel; maintain own laboratory records in accessible form
- Prepare written summaries of the research activities undertaken; communicate and make presentations within the research group, at meetings, and other recognised avenues as appropriate
- Provide technical advice, in relation to the research and the techniques used, to other staff members within the wider research team

- Be responsible for the maintenance, repair and operation of laboratory facilities / equipment (mainly relating to the Chemspeed ISYNTH robotic system), and contribute to the organisation, housekeeping and operational management of the laboratory; maintain stocks of consumables
- Provide laboratory inductions, ongoing training, supervision and technical support for undergraduate and postgraduate students, members of staff and visitors using the laboratory facilities and equipment
- Develop laboratory protocols, standard operating procedures and maintenance schedules for laboratory equipment, and be responsible for laboratory operational health and safety processes and procedures
- Responsible for keeping own knowledge and understanding up to date in chemical synthesis, particularly relating to automation; translating knowledge of advances in the subject area into research activity
- The post holder may be required to undertake others duties within the scope and grading of the post
## PERSON SPECIFICATION

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<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tr>
<td>Minimum of two A levels in science subjects</td>
<td>Essential</td>
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<td>A degree in Chemistry or joint Chemistry/Science subject; or equivalent experience</td>
<td>Essential</td>
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<td><strong>Knowledge</strong></td>
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<td>Database management (i.e. managing data from LCMS, GCMS etc., and including such data in a Database system)</td>
<td>Essential</td>
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<td>Knowledge of lab safety regulations and procedures, COSHH</td>
<td>Essential</td>
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<td>Knowledge of modern analytical techniques (e.g. HPLC, Mass Spectrometry, NMR Spectroscopy)</td>
<td>Essential</td>
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<td>Knowledge of other analytical techniques (e.g. GC and GC/MS, in situ methods for spectroscopic analysis like IR Spectroscopy)</td>
<td>Desirable</td>
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<td>Knowledge of chemical synthesis</td>
<td>Essential</td>
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<td>Robotic systems and/or programming</td>
<td>Desirable</td>
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<td><strong>Skills, abilities and competencies</strong></td>
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<td>Competency in data handling and archiving</td>
<td>Essential</td>
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<td>Ability to work under pressure while still providing high quality work with attention to detail</td>
<td>Essential</td>
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<td>Ability to work independently, yet in close collaboration with other scientists, particularly researchers working on related topics.</td>
<td>Essential</td>
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<td>Uses initiative to solve unusual or complex problems</td>
<td>Essential</td>
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<td>Planning and organisation skills, including the ability to meet deadlines</td>
<td>Essential</td>
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<td>Good documentation skills; accurate record keeping</td>
<td>Essential</td>
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<td>A high standard of written and verbal communication skills in English</td>
<td>Essential</td>
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<td>Good Computer skills using standard software, including Microsoft Office applications, ChemDraw and NMR software</td>
<td>Essential</td>
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<td>Ability to understand and interpret scientific literature and data</td>
<td>Desirable</td>
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<td>Ability to train other people</td>
<td>Desirable</td>
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<td>Ability to conduct fundamental chemical synthesis (i.e. typical reactions conducted as part of an undergraduate degree in Chemistry or Chemistry-related discipline).</td>
<td>Desirable</td>
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<th>Experience</th>
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<tr>
<td>Working with an academic research group; or equivalent industrial research team</td>
<td>Essential</td>
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<td>Familiarity with general laboratory management including ordering consumables</td>
<td>Essential</td>
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<td>Keeping concise and accurate laboratory records</td>
<td>Essential</td>
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<td>Operating modern analytical equipment</td>
<td>Desirable</td>
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<td>Carrying out safety risk assessments</td>
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<td>Several months of laboratory work, preferably in at least two different laboratories</td>
<td>Desirable</td>
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<td>Experience of data collation and initial data interpretation and analysis</td>
<td>Desirable</td>
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### Personal attributes

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<tr>
<td>Responsible, reliable, and highly motivated</td>
<td>Essential</td>
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<td>Willingness to learn new techniques and keep up to date with developments in own field of expertise</td>
<td>Essential</td>
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<td>Willingness to, on occasion and as required by experiments, work flexible hours</td>
<td>Desirable</td>
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<tr>
<td>Disciplined with regard to confidentiality and security at all times</td>
<td>Essential</td>
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The Department

The Fairlamb Research Group

Our research group is UK-leading in mechanistic organic and organometallic chemistry. We have a strong international reputation in catalysis, chemical synthesis and applications, involving metals. The group have a unique research outlook, evident in our international profile in two distinct and complementary research fields, ie transition metal catalysis and CO-releasing molecule (CORM) therapeutic metal complexes. These interests are connected by fundamental rational design principles in understanding how substrates and ligands interact with metals. In conducting significant mechanistic studies, in addition to the development of new metal catalysts, the group have developed interests in screening chemical reactions using robust, productive and reproducible methods using automated robotic systems (this project), data capture and data analysis by statistical methods.

Further information about the Fairlamb Research Group can be found by clicking

http://www-users.york.ac.uk/~ijsfl/index.html

The Department of Chemistry

The Department of 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 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 DEPARTMENT

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/ 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 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 http://www.york.ac.uk/univ/nrsry/.

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 DEPARTMENT

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 anticipated in 2018.
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 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 7089
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 4 November 2018

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

Direct any informal queries to Professor Ian Fairlamb:
ian.fairlamb@york.ac.uk

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