Lecturer in Chemistry (Synthetic Molecular Organic Materials)

Department of Chemistry

Closing date: 25 February 2018
Interview date: 12-13 April 2018
Vacancy reference: 6320
INTRODUCTION

As part of its long-term research strategy, the Department of Chemistry is seeking to appoint two Lecturers within the Molecular Materials Group in Chemistry (https://www.york.ac.uk/chemistry/research/research-themes/molecular-mat/), This post (Synthetic Molecular Organic Materials) will develop innovative supramolecular materials whilst a second post (Applied Molecular Materials) will develop innovative applications of supramolecular materials. If you would like to be considered for each position, please apply for each separately. The posts are available from June 2018, or as soon as possible thereafter.

The Molecular Materials Group, led by Professor David Smith, is undergoing significant investment, with two new lectureship appointments to complement and extend the existing expertise. Researchers in this group have world-leading expertise in molecular materials, including supramolecular gels and polymers, micelles, nanoparticles, liquid crystals and ionic liquids. They enhance fundamental understanding of these systems and translate this knowledge into applications, ranging from tissue engineering to energy technologies. The Group is housed in state-of-the-art laboratories in the Department of Chemistry.

The successful candidate will be a supramolecular materials chemist, focused on synthesis and assembly of molecular materials using carefully designed molecular-scale building blocks. You will be skilled in applying synthetic chemistry to create systems that assemble into nanostructured materials/biomaterials such as gels, polymers, micelles, vesicles or nanoparticles and it is expected that the materials generated will be self-assembled soft matter systems, rather than crystalline/hard materials. You will be interested in applying your innovative materials, and will have a multidisciplinary outlook, who can work with those in other disciplines to achieve this. You will teach organic/materials chemistry in the Department of Chemistry.

The Department of Chemistry (www.york.ac.uk/chemistry/) is renowned internationally for its research and combines this with high-quality teaching and outstanding student satisfaction. As part of its commitment to principles of equality, it has developed a series of family-friendly practices that are recognised by an Athena SWAN Gold Award: https://www.york.ac.uk/chemistry/ed/
Main purpose of the role

- To undertake independent research in synthetic supramolecular molecular materials in the Department of Chemistry.
- To undertake fundamental research in self-assembling systems and with a view to their integration into new technologies.
- To develop research objectives, projects and proposals, and carry out individual or collaborative interdisciplinary research projects to further their research interests.
- To lead on, and/or contribute to, the production of research outputs and research outcomes.
- To design, develop and deliver teaching across a range of modules and/or within a particular programme or subject area, probably in the areas of organic/materials chemistry.
- To undertake effectively a range of administrative and managerial responsibilities.

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

Research and Scholarship

- To develop and promote the research activities of the department by developing a personal research plan independently and/or in collaboration with others as part of a larger research team.

Teaching and Promotion of Learning

- To plan, deliver and review critically a range of teaching and assessment activities.
- To undertake academic supervision of students (including research students) and act as a research supervisor within own specialist subject area.
- To set and mark practical sessions, supervisions and examinations, and provide constructive feedback to students.

Management and Administration

- To contribute to the recruitment and selection of research and teaching staff.
- To contribute to the administration and management of the department.
- To advise, supervise and give guidance to other departmental staff as appropriate.

- To plan, manage and undertake research activities in accordance with a specific project plan, and to manage and guide the work of staff and research students in own specialist area.
- To develop innovative research proposals, identifying and obtaining external sources of funding.
- To publish original research in appropriate journals or other relevant media as appropriate and attend international conferences for the purpose of disseminating research results and/or for personal development.
### Person Specification

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<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tr>
<td>PhD in Chemistry or Materials Science or equivalent experience</td>
<td>Essential</td>
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<td>Appropriate academic professional and teaching qualifications or a willingness to complete the Postgraduate Certificate in Academic Practice</td>
<td>Essential</td>
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<tr>
<th>Knowledge</th>
<th>Essential / Desirable</th>
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<tr>
<td>Specialist knowledge of chemistry suitable for the development of innovative supramolecular organic materials</td>
<td>Essential</td>
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<td>High-level knowledge of soft matter systems and their possible applications</td>
<td>Essential</td>
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<td>Knowledge of a range of research techniques and methodologies</td>
<td>Essential</td>
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<td>Research expertise in supramolecular materials that will complement and enhance the department’s research strategy and goals</td>
<td>Essential</td>
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<td>Knowledge of a range of teaching techniques to enthuse and engage students</td>
<td>Desirable</td>
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<th>Skills, abilities and competencies</th>
<th>Essential / Desirable</th>
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<tr>
<td>Ability to develop research objectives, projects and proposals</td>
<td>Essential</td>
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<td>Well-developed analytical skills</td>
<td>Essential</td>
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<td>Highly developed oral and written communication skills, including ability to write and/or contribute to publications and/or to disseminate research findings using other appropriate media</td>
<td>Essential</td>
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<td>Ability to deliver presentations at conferences or exhibit work at other appropriate events internally and externally</td>
<td>Essential</td>
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<td>Ability to extend, transform and apply knowledge from scholarship</td>
<td>Essential</td>
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<td>Ability to design teaching material and deliver either across a range of modules or within a subject area</td>
<td>Essential</td>
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<td>Ability to supervise the work of others, for example in research teams or projects or as an MSc PhD or postdoctoral supervisor</td>
<td>Essential</td>
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<td>Excellent IT skills</td>
<td>Essential</td>
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# PERSON SPECIFICATION

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<th>Experience</th>
<th>Essential / Desirable</th>
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<tr>
<td>Proven ability to contribute to high-quality research which is evidenced publicly.</td>
<td>Essential</td>
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<td>Experience of teaching and learning at undergraduate and/or postgraduate level</td>
<td>Essential</td>
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<td>Evidence of dissemination of research findings which may include: the presentation of papers at conferences and workshops; participation in public engagement events to disseminate research; the publishing of chapters in text books; the publishing of papers; articles or reviews in academic journals or elsewhere; the construction of websites</td>
<td>Essential</td>
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<td>Evidence of designing teaching materials</td>
<td>Desirable</td>
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## Personal attributes

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<tr>
<td>Attention to detail and commitment to high quality</td>
<td>Essential</td>
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<td>Display creativity, initiative and judgement in applying appropriate approaches to teaching, learning support and scholarly activities</td>
<td>Essential</td>
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<td>Positive attitude to colleagues and students</td>
<td>Essential</td>
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<td>Willingness to work proactively with colleagues in other work areas/institutions</td>
<td>Essential</td>
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<td>Ability to plan and prioritise own work in order to meet deadlines</td>
<td>Essential</td>
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<td>Commitment to personal development and updating of knowledge and skills</td>
<td>Essential</td>
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<td>Collaborative ethos</td>
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<td>Show commitment to the department/university outside of their chosen field, for example undertaking management and administration duties</td>
<td>Essential</td>
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THE DEPARTMENT

Soft matter science in York has a strong foundation, with expertise across a range of different molecular materials systems. Leadership in supramolecular organic materials is currently provided by Professor David Smith, who exploits gels in applications ranging from environmental remediation to tissue engineering, and has developed self-assembled systems for biomedical applications such as gene delivery and coagulation control. Dr Victor Chechik applies physical organic methods to supramolecular systems including nanoparticles and gels, with a variety of environmental and energy applications in mind, and makes use of EPR for characterisation of soft-smart materials. Professor Duncan Bruce, Emeritus Professor John Goodby and Dr Isabel Saez lead activities in liquid crystal science and have pioneered such materials based on unusual molecular-scale building blocks, Dr John Slattery undertakes research in ionic liquids, and expertise in the development of new optical technologies is provided by Dr John Moore. There are links between the Molecular Materials Group and scientists active in quantum chemistry, molecular dynamics and statistical thermodynamics (Karadakov, Bates and Shimizu) and applied bioelectrochemistry (Parkin). There is also a strong interest in renewable soft materials provided in collaboration with the Green Chemistry research group.

The department has wide-ranging technologies for the development and characterisation of integrated supramolecular soft smart materials, including new cryo-EM equipment, as well as excellent facilities for TEM, SEM, AFM, DLS, rheology, calorimetry, SAXS and WAXS. The department has outstanding NMR and mass spectrometric service facilities (including MAS-NMR), ideal for studying this type of materials, and also offers a chromatographic service laboratory for HPLC and GPC.

The successful candidate will be integrated into the Molecular Materials research group, making use of the available equipment, and will lead their own projects within it. You will develop your own portfolio of research and their own trademark approach to self-assembled organic materials science. It is also anticipated that you will develop collaborative projects with others in the group, as well as with scientists from other disciplines who can assist with integration of their smart materials into new technologies.

More information on the Molecular Materials Group is available:

https://www.york.ac.uk/chemistry/research/research-themes/molecular-mat/

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 in the 2018 Guardian League Table Guide, Complete University Guide and Times University League Tables where it achieved an outstanding 2nd and two 4th places, respectively.

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 degree programmes within the Department of Chemistry at the University of York are recognised nationally and internationally for the quality of their student experience, novel teaching methods and final outcomes. The undergraduate courses, 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 95% in the National Student Survey 2017. Central to York’s teaching is the college system. All Chemistry students belong to one of the eight teaching colleges which contain a number of tutors from different disciplines, one of whom is also the student’s pastoral supervisor. The college system provides the majority of the Department’s learning support through either tutorials (5 students per session) or workshops (whole college group, maximum 25 students). The Core undergraduate Chemistry programme is delivered through lecture courses comprising between 5 and 9 lectures. Although some core modules are themed, they are intended to be interdisciplinary and are not delivered as traditional sub-disciplines. Student teaching laboratory work is undertaken in the recently built chemistry F-block. In Years 1 and 2, students typically spend one whole day a week in the laboratory. MChem students in Year 3 undertake three advanced experiments in the Autumn Term and an open-ended group mini-project in the Spring Term, designed to act as preparation for final-year research projects. The Department offers a number of transferable skills courses throughout the programme covering topics such as ethics, presentation skills, team working, quantitative skills and mathematics.

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/ and a Child Care voucher scheme.

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 are currently being extended (2018), while most recently, 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.
THE UNIVERSITY

Founded on principles of excellence, equality and opportunity for all, the University of York opened in 1963 with just 230 students. In 2017 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 one of just six post-war universities which appear in the world top 100 (2013-14) and 15th in the Times & Sunday Times league table (2016). 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 aims to offer a nurturing and supportive environment as an employer. Flexible working hours, nursery facilities, childcare vouchers, cycle to work scheme, generous holidays and an attractive pension scheme all make the University of York one of the region’s leading employers.

For further information please visit our [employee benefit pages](#).
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 6320
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 25 February 2018

What will I need?
You will need to upload:
- your CV
- a letter describing how you meet the requirements of the job (see advert for details)
- a four-page research proposal
You will also need to provide details of 3 referees.

Help and assistance
Direct any informal queries to Molecular Materials Group Leader, Professor David Smith (david.smith@york.ac.uk) or the Head of Department, Professor Duncan Bruce (chem-hod@york.ac.uk)

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk
+44 (0)1904 324835