Postdoctoral Research Associate in Molecular Materials
Department of Chemistry

Closing date: 30 November 2018
Interview date: To be confirmed
Vacancy reference: 7121
Applications are invited for a highly motivated Postdoctoral Research Associate to work within the newly formed Molecular Materials for Energy research group of Dr Alyssa-Jennifer Avestro in Chemistry at the University of York. The position is fully-funded by the Royal Society and Global Challenges Research Fund for a period of 12 months starting as early as January 2019 with the possibility of extension for a further year. The successful candidate will conduct excellent research within the context of projects aimed at the development of 'Multi-Dimensionally π-Conjugated Supra (macro)molecular Materials.' Research activities in the group revolve around the design, synthesis and characterisation of new multi-electron organic acceptors whose emergent materials, electrochemical and charge/mass transport properties arise from the specific 1-, 2- or 3D arrangement of its molecular-level π-interactions. The Avestro Group is ultimately interested in promoting robust, rational design strategies to access functional organic molecular systems and materials with attractive properties for high-performance organic optoelectronics, semiconducting, energy storage (e.g., rechargeable batteries) and/or energy conversion (e.g., OLED, photovoltaic) applications.

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/

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/
The postdoctoral research project is centred on the synthesis and characterisation of ‘Three-Dimensionally Conjugated Organic & Hybrid Materials for Efficient Electron Transport’ (specific project details to be negotiated.) The main emphasis of the project is placed on molecular/crystal structure–electrochemical property analysis and correlation of electroactive molecular and/or coordination materials featuring the unique three-dimensional (i.e., radial) conjugation of its redox-active π-units. The appointment will suit a candidate with strong experience in organic synthesis and/or coordination chemistry as well as a range of materials characterisation techniques. Preference will be given to candidates who possess hands-on experience in advanced spectroscopy, electrochemistry and/or thin-film conductivity analysis, including sample preparation of thin films on glass/metal/semiconductor substrates. Experience in organic device fabrication and testing is appreciated, but not required. The successful candidate is also expected to lend their expertise and take active part in other ongoing projects in the Avestro Group. There will be opportunities for exceptional candidates to develop their career independence by pursuing some of their own research ideas within the scope of Avestro Group goals. The successful candidate will also receive training and access to high-resolution microscopy facilities at the York JEOL Nanocentre: https://www.york.ac.uk/nanocentre/.

Key responsibilities

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

- To conduct individual and collaborative research projects, duties to include:
  - planning and carrying out projects related to the development of electroactive molecular materials;
  - use of appropriate research techniques and methods to complete synthesis, purification and detailed materials characterisation in a high-quality and rigorous manner;
  - analysis and interpretation of research data related to the molecular/crystal structure–properties correlation of electroactive materials;
  - writing up of research results and dissemination through high-impact publications, seminar and conference presentations and public engagement and outreach activities;
  - contributing to the identification and leadership of possible new areas of research
- To develop and initiate collaborative work internally and externally, duties to include: the building of internal contacts and participation in internal networks; collaboration with colleagues on joint projects as required; participation in and identification of external networks in order to share information and identify potential opportunities for collaboration and possible sources of funding; attendance at and contribution to relevant meetings
- To provide guidance to other staff and students, as required, as well as coordinating the work of small research teams to achieve positive progress and research momentum
- To participate actively in, and contribute to, a supportive and egalitarian working group culture
JOB DESCRIPTION

♦ To contribute to the preparation of research proposals and applications to external bodies

♦ To undertake appropriate organisational and administrative activities connected to the research project, including conference organisation, and the development of promotional or educational material including website maintenance and development

♦ The post holder will also be required to undertake any other duties relevant to and commensurate with the level of the post, including but not limited to:

◊ Keeping up-to-date with relevant published literature and sharing information with group members

◊ Working closely with PhD students, and contributing to their training and scientific development

◊ Assisting in the training and supervision of undergraduate and Masters level project students

The above list of duties is not exhaustive and is subject to change. The post holder may be required to undertake other duties relevant to the project and Avestro Group goals within the scope and grading of the post.
## PERSON SPECIFICATION

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<tr>
<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tr>
<td>First degree in Chemistry or Chemistry-related degree (e.g., Natural Sciences, Materials Science)</td>
<td>Essential</td>
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<td>PhD in organic synthesis, coordination chemistry, molecular materials or equivalent experience</td>
<td>Essential</td>
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### Knowledge

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<th>Knowledge</th>
<th>Essential / Desirable</th>
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<tr>
<td>Knowledge and experience in the areas of electroactive molecular and/or coordination materials (which can include metal-organic frameworks) to engage in high quality research</td>
<td>Essential</td>
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<td>Knowledge and experience of an appropriate range of research techniques and methodologies for organic synthesis and materials characterisation</td>
<td>Essential</td>
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<td>Has research expertise in areas that will complement and enhance the department's and the research strategy and goals of the Avestro Group</td>
<td>Essential</td>
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<td>An understanding of the operation of a modern research laboratory and an awareness of health and safety issues</td>
<td>Essential</td>
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### Skills, abilities and competencies

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<th>Essential / Desirable</th>
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<td>Ability to design experiments to prepare and characterise new materials, optimise their generation (e.g., by conditions screening)</td>
<td>Essential</td>
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<td>Ability to think logically and creatively, make well-informed decisions to progress the project(s) in a timely manner</td>
<td>Essential</td>
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<td>Highly developed English-language communication skills to engage effectively with a wide-ranging audience, both orally and in writing, using a range of media to promote research including the high-profile journal publications, delivery of presentations at conferences or exhibiting work at other appropriate events</td>
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<td>Competency to conduct individual work and actively engage in collaborative projects</td>
<td>Essential</td>
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<td>Ability to make use of, comply with and maintain appropriate data management systems</td>
<td>Essential</td>
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<td>Ability to develop research objectives, projects and proposals for own and joint research, with the assistance of a mentor if required</td>
<td>Desirable</td>
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<td>Ability to fabricate and test organic electronic devices</td>
<td>Desirable</td>
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<td>Ability to identify sources of funding and contribute to the process of securing research funds, with collaborators if required</td>
<td>Desirable</td>
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<td>Ability to fabricate organic electronic devices</td>
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<td>Experience</td>
<td>Essential / Desirable</td>
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<tr>
<td>Experience of carrying out both independent and collaborative research in the area of electroactive molecular materials (e.g., organic synthesis, coordination chemistry, materials characterisation such as spectroscopy, X-ray diffraction, electrochemical analyses)</td>
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<td>Experience of experimental design in cases where a pre-existing methodology either needs significant adaptation, or does not exist</td>
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<td>Experience of writing up research work for publication in high-profile English-language journals</td>
<td>Essential</td>
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<td>Experience of working with collaborators from different disciplines and/or initiating collaborative activities</td>
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<td>Experience of supervising and leading PhD and undergraduate project students</td>
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<td>Experience of preparing successful project and research funding proposals</td>
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<td>Experience in creating high-quality figures and graphics to promote research concepts and project results to diverse and broad audiences</td>
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<td>Personal attributes</td>
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<td>Attention to detail and commitment to high quality and rigour</td>
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<td>Highly motivated and professional work ethic, collaborative ethos and a willingness to work proactively with others</td>
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<td>Interest and enthusiasm for molecular materials research</td>
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<td>Positive attitude towards colleagues and students, especially supportive to those requiring assistance</td>
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<td>Actively encourages a positive group dynamic and contributes to building up team camaraderie</td>
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<td>Organised, able to plan and prioritise own work in order to meet deadlines, including using initiative to plan research programmes</td>
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<td>Commitment to personal development and updating of knowledge and skills, including multidisciplinary areas beyond current expertise</td>
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The Avestro Group at York
The successful candidate will join the newly established Molecular Materials for Energy research group led by Dr Alyssa-Jennifer Avestro as a senior team member and will be based in the Molecular Materials Laboratory within the Department of Chemistry at the University of York. Dr Avestro, recipient of a prestigious Royal Society Dorothy Hodgkin Fellowship and past holder of a Royal Commission for the Exhibition of 1851 Research Fellowship (at Durham University), is the most recent academic to join the re-vitalised Molecular Materials initiative at the University of York. Dr Avestro and the ‘A-Team’ are generously funded by the Royal Society and Global Challenges Research Fund to pursue the development of functional organic molecular systems, assemblies and materials that may lead to efficient electron-transport and high-performance in organic electronics and energy device applications. Strategies to access bespoke molecular materials employed by the group include organic covalent synthesis, supramolecular (and macromolecular) assembly, host-guest molecular recognition and coordination chemistry. The Molecular Materials Laboratory is situated in the newly built Dorothy Hodgkin Building on Heslington Campus West and features a 21-fume cupboard work space for chemistry and materials synthesis, dedicated suites for carrying out high-precision chromatography, optical microscopy and device fabrication.

Dr Avestro’s training alongside high-profile chemists such as 2016 Nobel Laureate Sir Fraser Stoddart FRS (Northwestern University, 2010–2015) and a pioneer of anion–π interactions Stefan Matile (University of Geneva, 2015) has led to numerous early career achievements, awards (e.g., L’Oreal For Women in Science, SciFinder Future Leaders) and invitations to deliver lectures and plenary talks around the world. She is now passionately engaged in promoting the advancement of other early career scientists, especially of those from minority and disadvantaged circumstances. Moreover, Dr Avestro is actively engaged in science outreach (over 8,700 children at Celebrate Science 2017) and has a growingly popular presence on science social media.

For further information on Avestro Group research, visit: https://www.york.ac.uk/chemistry/staff/academic/a-c/dr-avestro

For more information on the Molecular Materials initiative at York, see: 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
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dynamic and thriving department. The excellence of Chemistry at York was recognised in the 2019 Guardian League Table Guide, 2019 Complete University Guide and 2018 Times University League Table where it achieved outstanding 3rd, 6th and 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 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/family-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/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
THE DEPARTMENT

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 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 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 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 7121
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 30 November 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)

You will also need to provide details of 2 referees.

Help and assistance

Direct any informal queries to
Dr Alyssa-Jennifer Avestro
(alyssa-jennifer.aviestro@york.ac.uk)

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