London Centre for Nanotechnology
17-19 Gordon Street
London WC1H 0AH
www.london-nano.com

Title:	Research Associate in X-ray Physics
Reference:	1732636
Grade:	UCL Grade 7
Salary:	£34,635 – £41,864 (including London Allowance) per annum
Terms and Conditions:	In accordance with the conditions of employment as laid down in the relevant UCL Staff policies
Accountable to:	Professor Des McMorrow

Job Summary:

Professor Des McMorrow has been awarded a five-year EPSRC Established Career Fellowship "*Novel X-ray methods for studying correlated quantum matter in the strong spin-orbit coupling limit*".

The project is focused scientifically at the new frontier between strongly correlated electron systems and strongly spin-orbit coupled materials. This frontier is attracting considerable interest through a range of predictions for the existence of exotic electronic phases, including topological states of matter, such as the correlated Weyl semi-metals or Kitaev quantum spin liquid, unconventional superconductivity, etc. From the technical point of view, novel X-ray techniques will be developed in collaboration with the central facilities Project Partners (Diamond, ESRF, PETRA III). These include specific objectives to: significantly extend the capabilities of resonant elastic and inelastic X-ray scattering techniques, REXS and RIXS respectively; develop X-ray methods for studying correlated quantum electronic matter under extreme conditions towards Mbar pressures; exploit the capabilities of X-ray free electron lasers for time resolved REXS (tr-REXS) and time resolved RIXS (tr-RIXS) to study the formation non-equilibrium states in the ultrafast regime. The successful candidate will be expected to make significant contributions to one or more of the above objectives and to related activities.

This position is funded until 31 May 2021 in the first instance.

Duties and Responsibilities:

- Carry out research and be responsible for key aspects of the overall Research Project focusing on the preparation, execution and interpretation of experiments performed at X-ray synchrotron and free-electron laser sources.
- Collaborate with other members of the group, including Ph.D. students, as well as members of relevant research groups at other institutions.
- Contribute to the drafting and submitting of applications for beamtime at central facilities.

- Contribute to the drafting and submitting of papers to peer reviewed journals/conferences/workshops, of progress reports as required, and of further research bids and proposals.
- Contribute to the overall activities of the centre/department and of the research team (including maintaining equipment) as required.
- Contribute to the induction and training of other research staff and students as requested.
- The postholder will carry out any other duties as are within the scope, spirit and purpose of the job as requested by Prof Des McMorrow.
  If duties and responsibilities change, the job description will be reviewed and amended in consultation with the postholder.
- The postholder will actively follow UCL policies including Equal Opportunities and Race Equality policies.
- The postholder will maintain an awareness and observation of Fire and Health & Safety Regulations.
- To undertake a limited amount of teaching in relation to subject area.

PERSON SPECIFCATION

Educational Qualifications

Essential: Applicants should have a PhD (or have at least submitted their thesis) in experimental condensed matter physics or in a closely related field.

Essential experience and skills

- Experience of performing experiments on strongly correlated electron systems.
- Experience of neutron and/or X-ray scattering techniques.
- Experience of performing bulk experiments to determine physical properties, e.g. using a PPMS, etc.
- Fluency and clarity in spoken English.
- Good written English.
- Good computer programming skills.
- Ability to work at central facilities both national and international.
- Ability to work collaboratively as part of team.
- Commitment to high quality research.
- Ability to deliver adequate training and support to other lab users.
- Track-record of publications in any area of experimental condensed matter physics, electronic materials, etc.

Desirable experience and skills

- Experience of magnetic X-ray and/or scattering.
- Experience of analysing scattering data, including inelastic data.
- Experience of using MATLAB and or Python.
- Experience of advanced X-ray techniques such as RIXS, REXS etc.
- Experience of growing single crystals.

London Centre for Nanotechnology

The London Centre for Nanotechnology is an interdisciplinary joint enterprise between University College London and Imperial College London. In bringing together world-class infrastructure and leading nanotechnology research activities, the Centre aims to attain the critical mass to compete with the best facilities abroad. Research programmes are aligned to three key areas, namely Planet Care, Healthcare and Information Technology and exploit core competencies in biomedical, physical and engineering sciences.

The Centre occupies a purpose-built eight storey facility in Gordon Street, Bloomsbury, as well as extensive facilities within different departments at South Kensington. LCN researchers have access to state-of-the-art clean-room, characterisation, fabrication, manipulation and design laboratories. This experimental research is complemented by leading edge modelling, visualisation and theory.

LCN has strong relationships with the broader nanotechnology and commercial communities, and is involved in much major collaboration. As the world's only such facility to be located in the heart of a metropolis, LCN has superb access to corporate, investment and industrial partners. LCN is at the forefront of training in nanotechnology, and has a strong media presence aimed at educating the public and bringing transparency to this emerging science.

About UCL

UCL is one of the world's top universities. Based in the heart of London, it is a modern, outward-looking institution. At its establishment in 1826, UCL was radical and responsive to the needs of society, and this ethos – that excellence should go hand-in-hand with enriching society – continues today.

UCL's excellence extends across all academic disciplines; from one of Europe's largest and most productive hubs for biomedical science interacting with several leading London hospitals, to world-renowned centres for architecture (UCL Bartlett) and fine art (UCL Slade School).

UCL is in practice a university in its own right, although constitutionally a college within the federal University of London. With an annual turnover exceeding £1 billion, it is financially and managerially independent of the University of London.

The UCL community

UCL's staff and former students have included 29 Nobel prizewinners. It is a truly international community: more than one-third of our student body – more than 35,000 strong – come from 150 countries and nearly one-third of staff are from outside the UK.

UCL offers postgraduate research opportunities in all of its subjects, and provides more than 200 undergraduate programmes and more than 400 taught postgraduate programmes. Approximately 54% of the student community is engaged in graduate studies, with about 29% of these graduate students pursuing research degrees.

Quality of UCL's teaching and research

UCL is independently ranked as the most productive research university in Europe (SIR).

It has 983 professors – the highest number of any university in the UK – and the best academic to student ratio of any UK university (*The Times*, 2014), enabling small class sizes and outstanding individual support.

In Research Excellence Framework 2014 (REF2014), UCL was rated the top university in the UK for 'research power' (the overall quality of its submission multiplied by the number of FTE researchers submitted). It was rated top not only in the overall results, but in each of the assessed components: publications and other research outputs; research environment; and research impact. REF2014 confirmed UCL's multidisciplinary research strength, with many leading performances across subject areas ranging from biomedicine, science and engineering and the built environment to laws, social sciences and arts and humanities.

Equality

UCL is proud of its longstanding commitment to equality and to providing a learning, working and social environment in which the rights and dignity of its diverse members are respected.

Some highlights below:

- **Race Charter Mark** - UCL holds a Bronze Race Equality Charter Mark award, recognising UCL's commitment to improving the representation, progression and success of minority ethnic staff and students.
- **Athena SWAN** - UCL holds an institutional Silver **Athena SWAN** award – this recognises our commitment to and impact in addressing gender equality. Departments at UCL are also engaged in the Athena SWAN charter, with 29 departments holding an award; 16 Silver and 13 Bronze.
- **Staff networks** - We have a number of staff networks that run a range of social and development activities, for example **Out@UCL**, **PACT**, **Enable@UCL**, **the race equality staff network**, **Astrea** and **UCL Women**.
- **B-MEntor** – **B-MEntor** is a mentoring scheme for black and minority ethnic staff. The mentoring scheme is a collaborative initiative with a number of London-based universities.
- **Sabbatical Leave following maternity** – UCL provides one term of sabbatical leave without teaching commitments for research-active academics returning from maternity, additional paternity, adoption or long-term carer's leave. This support for returners enables staff to more quickly re-establish their research activity.

Please see our **Equalities and Diversity Strategy 2015-2020** for information on our current priorities.

Location and working environment

Based in Bloomsbury, UCL is a welcoming, inclusive university situated at the heart of one of the world's greatest cities.

UCL's central campus is within easy reach of Euston, Kings Cross and Marylebone mainline stations, the new Eurostar terminal at St. Pancras and the following Underground stations - Euston Square, Warren Street, Goodge Street and Russell Square. Road connections to the M1 and M40 motorways give easy access to the north and west road networks. There are also good public transport links to Heathrow airport.

Application procedure

Further details about the post and the application procedure are available at www.london-nano.com. If you are unable to apply online please contact Denise Ottley at the London Centre for Nanotechnology, d.ottley@ucl.ac.uk or 17-19 Gordon Street, London WC1H 0AH, for advice.