UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Quantum Spin Hall Spintronics, Faculty of Engineering & Physical Sciences

Salary: Grade 7 (£33,797 – £40,322 p.a.)

Reference: EPSPA1016

Closing date: 11 October 2020

Fixed-term for up to 3.5 years

We will consider job share / flexible working arrangements

Research Fellow in Quantum Spin Hall Spintronics
Faculty of Engineering & Physical Sciences

Are you an ambitious researcher in spintronics looking for your next challenge? Do you want to further your career in one of the UK's leading spintronics research groups?

You will join an experimental research project on quantum spin Hall spintronics, funded by the Engineering and Physical Sciences Research Council. You will work in a team at the University of Leeds that is led by Prof. Christopher Marrows (School of Physics and Astronomy), and will collaborate with colleagues led by Prof. Edmund Linfield in the School of Electronic and Electrical Engineering, as well as our industrial partner, Qinetiq.

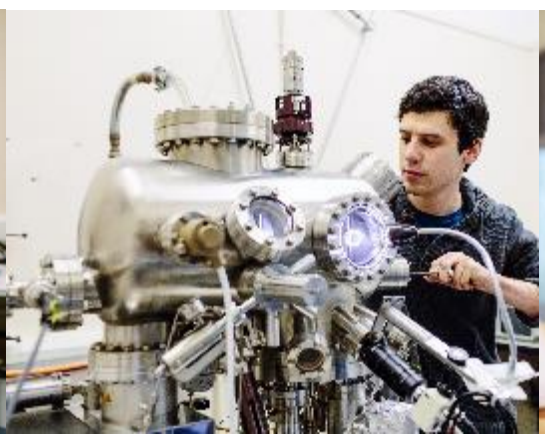
You will have an experimental PhD degree, or equivalent, and research experience in Physics and/or Electronic Engineering along with significant experience in the physics of nanomagnetism, semiconductor heterostructures, topological materials, and/or spintronics, ideally in the field of quantum spin Hall materials or related areas.

You will focus on the design and fabrication of semiconductor/ferromagnet heterostructure devices and their measurement by magnetotransport methods. In addition to carrying out a series of research projects, you will be an excellent communicator, responsible for day-to-day interactions with collaborators in both Schools, writing papers, and making presentations. You will sometimes travel to visit project partners and attend conferences in the UK, and overseas, to present your results.

What does the role entail?

As a Research Fellow, your main duties will include:

- Designing, planning and carrying out the experimental work needed to accomplish the aims of the project, in consultation with the academic leads. This will encompass the design of III-V (GaSb-InAs) semiconductor/ferromagnetic metal heterostructure nanoscale devices, their fabrication from wafers grown in the molecular beam epitaxy facility at Leeds, and magnetotransport measurements to study their properties;

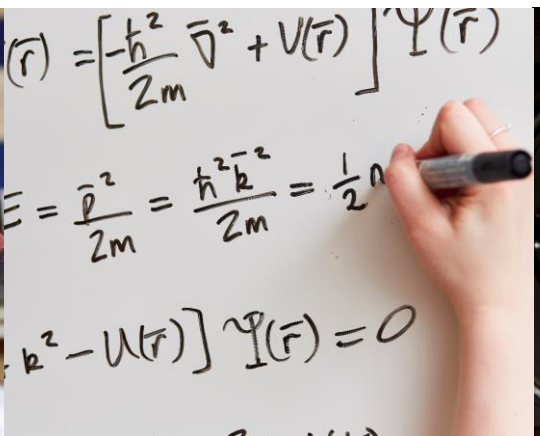

- Generating and pursuing independent and original research ideas relevant to the project;
- Developing research objectives and proposals, and contributing to setting the direction of the research project and team, which would include preparing proposals for funding in collaboration with colleagues;
- Evaluating methods and techniques used by other researchers and results obtained, and relating these appropriately to your own work;
- Preparing papers for publication in leading international journals and disseminating research results through other recognised forms of output;
- Working both independently and also as part of a larger team of researchers, and engaging in knowledge-transfer activities where appropriate and feasible;
- Maintaining your own continuing professional development, and acting as a mentor to less experienced colleagues as appropriate;
- Contributing to the training of both undergraduate and postgraduate students, including assisting with the supervision of projects in areas relevant to the project.

These duties provide a framework for the role and should not be regarded as a definitive list. Other reasonable duties may be required consistent with the grade of the post.

What will you bring to the role?

As a Research Fellow you will have:

- A PhD (or be close to completion/have submitted your thesis before taking up the role) in condensed matter physics, electronic engineering or a closely allied discipline;
- A strong background in the experimental study of spintronic and/or III-V semiconductor heterostructure devices (ideally in the InAs-GaSb materials system);
- The ability to travel to project meetings and conferences as required by the project schedule;
- Good time management and planning skills, with the ability to meet tight deadlines, manage competing demands and work effectively under pressure without close support;
- A proven track record of peer-reviewed publications in high quality journals;
- Excellent written and verbal communication skills including presentation skills;


- A proven ability to work well both individually and in a team;
- A strong commitment to your own continuous professional development.

You may also have:

- Skills in computing, both in writing software to control experimental apparatus and in numerical modelling and the analysis and simulation of data;
- Experience with semiconductor or spintronic device fabrication using comventional photolithography;
- Experience with cryogenic magnetotransport techniques;
- Knowledge of the scientific concepts underlying the project, in this case, those relevant to the quantum spin Hall effect, III-V semiconductor heterostructures, and topological materials;
- The ability to mentor and act as a role model for postgraduate researchers;
- Experience of pursuing external funding to support research.

How to apply

You can apply for this role online; more guidance can be found on our How to Apply information page. Applications should be submitted by **23.59** (UK time) on the advertised closing date.

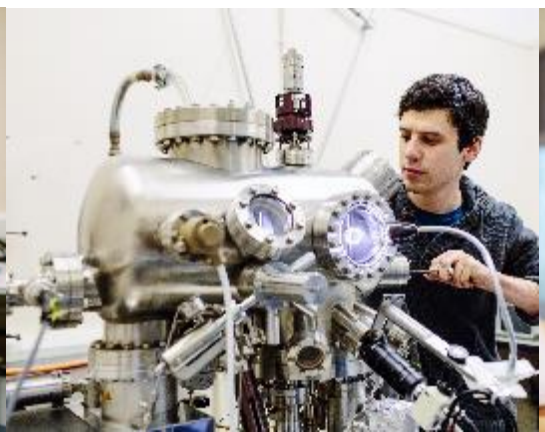
Contact information

To explore the post further or for any queries you may have, please contact:

Christopher Marrows, Professor of Condensed Matter Physics
Tel: +44 (0)113 343 3780
Email: c.h.marrows@leeds.ac.uk

Additional information

A diverse workforce
The Schools in the Faculty of Engineering & Physical Sciences are proud to have been awarded the Athena SWAN Bronze or Silver Award from the Equality Challenge Unit, the national body that promotes equality in the higher education sector. Our equality and inclusion webpage provides more information.


Working at Leeds
Find out more about the benefits of working at the University and what it is like to live and work in the Leeds area on our Working at Leeds information page.

Candidates with disabilities
Information for candidates with disabilities, impairments or health conditions, including requesting alternative formats, can be found on our Accessibility information page or by getting in touch with us at disclosure@leeds.ac.uk.

Criminal record information

Rehabilitation of Offenders Act 1974
A criminal record check is not required for this position. However, all applicants will be required to declare if they have any 'unspent' criminal offences, including those pending.

Any offer of appointment will be in accordance with our Criminal Records policy. You can find out more about required checks and declarations in our Criminal Records information page.