



UNIVERSITY OF LEEDS

CANDIDATE BRIEF

Research Fellow in Quantum Communications, Faculty of Engineering



Salary: Grade 7 (£32,004 – £38,183 p.a.)

Reference: ENGEE1063

Fixed term for 2 years (with possible extension)

Research Fellow in Quantum Communications

Institute of Microwaves and Photonics

Are you an experienced and ambitious researcher looking for your next challenge? Do you have a background in quantum communications? Do you want to further your career in one of the UK's leading research intensive Universities?

Quantum key distribution (QKD) provides unbreakable, future-proof security against the vulnerabilities of most cryptosystems currently in operation. QKD has been implemented mostly over dedicated channels and between two parties. Before current communication vulnerabilities are exploited, it is essential to facilitate the use of QKD technology for any two users at any distance, via a network. This project addresses the theoretical analysis of quantum communications networks, including the UK Quantum Network, at access and metro levels. Another key aspect is the theoretical development of future generations of quantum networks via quantum repeaters.

Holding a PhD (or an expectation that a PhD will be awarded soon) in Physics, Engineering, or a related discipline, you will have a track record in quantum communications research which has led to publications in international refereed journals. You will also need to have experience in the use of numerical/symbolic maths software such as MATLAB, Maple, or Mathematica.

You will work closely with [Dr M Razavi](#), at the intersection of quantum information science and optical communications. You will also collaborate with partner researchers in the [National Hub for Quantum Communications Technologies](#).

What does the role entail?

As a Research Fellow, your main duties will include:

- Executing world-class research focussed on QKD networks and Quantum Communications Hub activities;
- Identifying areas for research and extend the research portfolio of the research group;
- Developing initiative, creativity and judgement in applying appropriate approaches to research activities;



- Attending meetings as required to discuss the project, and contribute to joint discussions with the wider research group;
- Ensuring good day-to-day progress of work, and maintain good records;
- Writing up results for publication in leading international journals, and attend suitable conferences for their dissemination;
- Interacting with, and providing assistance to, other staff in the research group and the Hub;
- Working both independently and also as part of a larger team of researchers, 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 an expectation that a PhD will be awarded soon) in Physics, Engineering, or a related discipline;
- A track record in research which has led to publications in international refereed journals;
- Research experience or familiarity with QKD protocols and/or other quantum cryptography protocols;
- Research experience or familiarity with quantum repeaters;
- Research experience or familiarity with quantum optics;
- Research experience or familiarity with quantum error correction codes;
- Experience with numerical/symbolic maths software such as MATLAB, Maple, or Mathematica;
- Excellent written and verbal communication skills evidenced by journal publications and conference presentations.



You may also have:

- Experience of contributing to student supervision and training (both undergraduate and postgraduate).

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:

[Dr Mohsen Razavi](#), Associate Professor

Tel: +44 (0) 113 343 9406

Email: m.razavi@leeds.ac.uk

Additional information

Faculty and School Information

Further information is available on the research and teaching activities of the [Faculty of Engineering](#) and the [School of Electronic and Electrical Engineering](#).

A diverse workforce

The Faculty of Engineering is proud to have been awarded the [Athena Swan 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's 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 in our [Accessibility](#) section 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.

