PhD in Quantum Networks / related to the UK Quantum Technologies Hub for Quantum Communication Technologies

**Type of award**  
PhD Research Studentship

**Department**  
Electrical and Electronic Engineering, QET Labs

**Scholarship Details**  
Minimum £15,609 p.a. rising to 2022/23 rate when published

**Duration**  
3.5 years

**Eligibility**  
Home (UK) and EU citizens who have confirmation of UK settlement or pre-settlement status under the EU Settlement Scheme.

**Start Date**  
1 September 2022

**PhD Topic Background/Description**

This studentship will be related to the UK Quantum Technologies Hub for Quantum Communications Technologies whose key technical objective is the development of quantum communications technologies at all distance scales, pursuing integration between these technologies and with conventional communications infrastructure. The Communications Hub is part of a larger UK National Quantum Technology Programme (UKQNTP) and Bristol is a key academic partner.

Quantum communication is a method of encrypting data securely using the laws of physics as a guarantee that the message cannot be hacked in transit. Historically this technique has been established for a two-user point to point link and is rapidly gaining commercial interest. The challenge of creating a global quantum network interconnecting users for secure communication and quantum computers/sensors to make the "quantum internet" is currently a major research focus internationally and at the University of Bristol.

During this PhD you will develop new techniques to create quantum networks and improve on existing technologies to make these networks feasible and commercially viable. The project has a very broad scope and together, we will focus the scope of the project based on your preferences. Different scopes may include:

- photonic technologies
- interfacing of our network to other quantum systems like quantum sensors and quantum computers
- scaling quantum networks up to a global scale
- linking to ongoing satellite quantum communication efforts
- incorporating a diverse set of commercial and custom-made quantum communication systems into the network.

URLS for further information:  
[Quantum Communications Hub (quantumcommshub.net)](quantumcommshub.net)  
[Quantum Engineering Technology Labs](quantumengtlabs.com) | [Quantum Engineering Technology Labs](quantumengtlabs.com) | [University of Bristol](unibristol.ac.uk)
Further Particulars

Candidate Requirements
Applicants must hold/achieve a minimum of a master’s degree (or international equivalent) in a relevant discipline. Applicants without a master’s qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

If English is not your first language, you need to meet this profile level:
Profile E
Further information about English language requirements and profile levels.

Essential: Excellent analytical skills and experimental acumen

Desirable: A background understanding in one or more of the following: Quantum Physics, Optics, Communication Engineering, Photonics, Programming and Electronics. The list is in order of importance.

Scholarship Details
Stipend at the UKRI minimum stipend level will also cover tuition fees at the UK student rate. An annual allowance of £1,500 for travel and consumables will be included for the first 3 years. Funding is subject to eligibility status and confirmation of award.

To be treated as a home student, candidates must meet one of these criteria:
- be a UK national (meeting residency requirements)
- have settled status
- have pre-settled status (meeting residency requirements)
- have indefinite leave to remain or enter.

Informal enquiries
For questions about the research topic please contact Dr Siddarth Joshi at sk.joshi@bristol.ac.uk
For questions about eligibility and the application process please contact SCEEM Postgraduate Research Admissions.

Application Details
Prior to any application, please contact the academic listed to discuss your research proposal to see if it aligns with his current research. No indication of an offer can be made until a completed application has been received.

To apply for this studentship, submit a PhD application using our online application system

Please ensure that in the Funding section you tick “I would like to be considered for a funding award from the Electrical and Electronic Engineering Department” and specify the title of the scholarship in the “other” box below along with the name of the supervisor. Interested candidates should apply as soon as possible.

We will be interviewing candidates on a rolling basis, as and when applications are received. We are looking for self-motivated individuals who are enthusiastic about exploring quantum communication and networks.