

Description of MRes Translational Quantum Technology

Quantum technology has been identified by the UK Government as a key area of innovation, moving science into real-world applications. The UK National Quantum Technologies Programme has received funding of £350 million to support the development of a flourishing industry in this area in the UK.

The Translational Quantum Technology programme is aligned with the UK National Quantum Technology Hub in Sensors and Metrology, an £80 million collaborative effort and a part of the national programme, led by the University of Birmingham in partnership with the Universities of Glasgow, Nottingham, Southampton, Strathclyde and Sussex, and the National Physical Laboratory, together with over 70 companies.

It aims to prepare students for the challenges in translating quantum sensors and metrology devices based on atoms as probe particles into real-world applications. It offers a unique opportunity for students to undertake research in a multi-disciplinary environment between science, engineering and industry.

The programme consists of a one-year MRes carried out at the University of Birmingham and a three-year PhD project in one of the Hub's partner Universities listed above. Placements at the National Physics Laboratory (NPL) and with industry partners will also be supported.

The MRes element will feature classroom taught quantum physics-oriented modules for students with engineering backgrounds; technology-orientated modules for students with physics backgrounds; and an independent research project that is documented in a substantial thesis. The research project consists of a team element; where students will present a technical demonstration at a national or international conference. There is also an individual research element, which takes place in industry or in relation to a participating company.

Students will benefit from participating in both the technology translation and applied research activities carried out within the Quantum Technology Hub, and from the educational programmes offered by the University of Birmingham's College of Engineering and Physical Sciences.

The programme will enable students to acquire translational skills, including specific skills relevant to the emerging quantum technology industry. It aims to:

- develop research and technological skills, and knowledge of research methods applicable to quantum technology-related research;
- increase awareness of state-of-the-art developments in quantum technology;
- develop the understanding necessary to identify new and emerging research needs in the emerging quantum technology industry; and
- develop the knowledge and skills required to independently undertake a significant research project of relevance to the quantum technology industry.

Funding Notes:

- Stipends covering fees and living expenses are available for UK students.
- EU students can receive stipends for fees only.

Entry requirements:

- First or upper second class honours degree in a physics or engineering subject, or the equivalent qualification from a non-UK institution.
- For non-native English speakers: IELTS 6.5 with at least 6.5 in reading and writing, and at least 6.0 in listening and speaking.