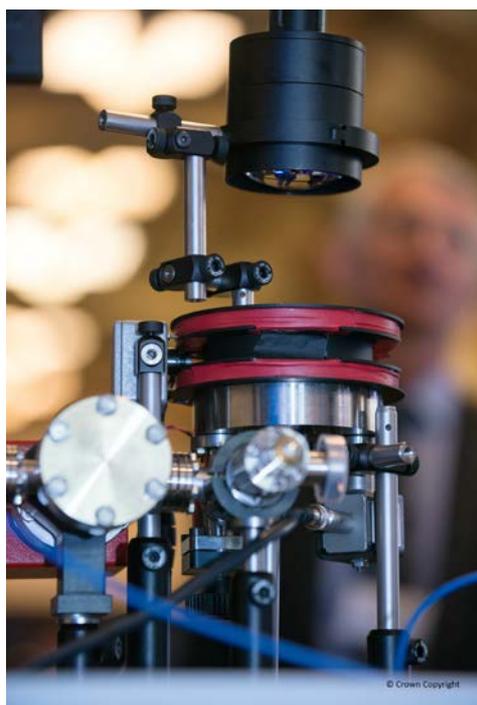


Led by the University of Birmingham, the UK National Quantum Technology Hub in Sensors and Metrology is one of four quantum technology hubs supported by the UK Government's National Quantum Technology Programme, funded by the Engineering and Physical Sciences Research Council. This hub brings together research expertise from the Universities of Birmingham, Glasgow, Nottingham, Southampton, Strathclyde and Sussex alongside a broad range of industry partners to transform science into technology. By building upon established technology development, user training and technology translation, the Hub aims to develop a strong user base, market and supply chains for new quantum technology sensor and metrology products.

Sensing and Metrology Applications



Prototype cold atom source for a portable quantum gravity sensor, which has been demonstrated at numerous national conferences including the Royal Society annual exhibition

Many *existing* technologies (e.g. microprocessors, solid-state imaging devices, the laser) are derived from quantum physics. We are now at the verge of a Quantum 2.0 revolution, where single particle control enables us to harness the more advanced aspects of quantum mechanics: superposition and entanglement. The Hub focusses on sensor and metrology applications of superposition, involving combinations of atoms, light, and matter. These sensors can be applied in a diverse list of industries including:

- Navigation and global positioning
- Defence
- Aerospace and Space
- Archaeology, geophysics and surveying
- Healthcare and biomedical research
- Communications and IT
- Metrology
- Consumer electronics

In each application there are specific challenges, with common themes of robustness, cost, accuracy, package size and enhanced metrological performance.

Collaborative Market Opportunities

Over 90 organisations have been involved in this Hub. Key industrial figures provide expertise, purpose, direction, challenge and management for the Hub's work. The formation of new academic and industrial collaborations is a critical success factor for this Hub, and funding for these activities has already been provisioned.



Quantum Technology Transfer Centre, University of Birmingham

The supply chains require elements of optics, magnets, lasers, power supplies, heating and cooling, atom and ion sources, ultra-high vacuum technologies, data processing, systems integration, process control, fabrication, packaging solutions and product design in addition to end users. Industrial partners at all stages of the emerging supply chains will be required to meet the market potential. To facilitate close collaboration, a Quantum Technology Transfer Centre, featuring labs and office space available for use by industrial and academic collaborators, is due to open at the end of 2015.

Hub Director, Prof. Kai Bongs, will be able to discuss the opportunities with you, including co-location of development facilities; meet the team events; Hub progress updates; and access to funding, scientists and engineers for collaborative research.

Contact Us



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The UK National Quantum Technologies Programme aims to ensure the successful transition of quantum technologies from laboratory to industry. The programme is delivered by EPSRC, Innovate UK, BIS, NPL, GCHQ and Dstl.

