News Release

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£29m investment to deliver quantum leap for UK imaging industry

Cameras which use just a single pixel to see through smoke, imaging systems which can time light to see around corners and miniature structures to create earthquake warning systems are just some of the quantum technologies set to be brought to market by a new consortium of universities and businesses.

Greg Clark, Minister of State for Universities, Science and Cities, announced today that a new Quantum Imaging Hub, led by the University of Glasgow, will receive £29m in funding over the next five years from the Engineering and Physical Sciences Research Council (EPSRC).

The hub brings together the Universities of Glasgow, Bristol, Edinburgh, Heriot-Watt, Oxford and Strathclyde with more than 30 industry partners.

The hub’s lead academic is Professor Miles Padgett of the University of Glasgow. Professor Padgett said: “The hub’s vision is to work in partnership with industry to translate our world-leading discovery science into revolutionary imaging systems that will benefit the UK economy across commercial, scientific and security sectors.”

One University of Glasgow-led project uses cheap, simple single-pixel sensors to build sophisticated ultraviolet or infrared video images much more affordably and conveniently than has been possible before. The sensors could be used in applications such as visualising gas leaks, seeing clearly through smoke, or looking under skin for tumours.

A second project, also led by the University of Glasgow, will use springs ten times thinner than a human hair to image minute changes in gravity fields. The work will enable a range of applications, including finding landmines, tracking magma moving under volcanoes and monitoring oil reserves to maximise extraction.

A new camera development led by Heriot-Watt University, uses highly advanced photon-timing techniques to recognise objects around corners, as well as images through walls or opaque biological tissue.
Professor Steve Beaumont, Director of The Quantum Imaging Hub, said: “We’re delighted to have received this support from EPSRC and are thrilled to be partnering with 37 industry collaborators. The Hub also includes a £4m partnership fund to support industry-led projects and a Scottish Funding Council investment of £3m to create innovation space where companies can work alongside university researchers to develop industry prototypes.”

Cabinet Secretary for Education and Lifelong Learning Angela Constance said: “Scotland has a long and exciting history of scientific discovery and I am very pleased to see Glasgow – alongside Edinburgh, Heriot Watt and Strathclyde among others – right at the heart of this hub which could transform how we see the world. The funding contribution from the SFC demonstrates our commitment to supporting research excellence and underlines our worldwide reputation for research and innovation.”

The Quantum Imaging Hub is one of four quantum technology hubs unveiled by the minister today that will be supported by the UK government’s £270m National Quantum Technology Programme announced by the Chancellor, George Osborne in his Autumn Statement of 2013. The new £120m network will involve 17 universities and 132 companies.

Greg Clark, Minister of State for Universities, Science and Cities, announced the Hubs during a visit to the University of Birmingham today. He said: “This exciting new Quantum Hubs network will push the boundaries of knowledge and exploit new technologies, to the benefit of healthcare, communications and security.

“This investment in Quantum technologies has the potential to bring game-changing advantages to future timing, sensing and navigation capabilities that could support multi-billion pound markets in the UK and globally.

“Today’s announcement is another example of the Government’s recognition of the UK’s science base and its critical contribution to our sustained economic growth”.

Professor Philip Nelson, EPSRC’s Chief Executive said: “These new Hubs will build on our previous investments in quantum science. They will draw together scientists, engineers and technologists from across the UK who will explore how we can exploit the intriguing properties of the quantum realm. The area offers great promise, and the Hubs will keep the UK at the leading edge of this exciting field.”

The capabilities in Quantum Technologies offer potentially transformative impacts in key areas such as quantum metrology and sensors; quantum simulators; quantum computers and quantum secure communications. The other hubs are led by the Universities of Birmingham, Oxford and York.
The Quantum Imaging Hub will be coordinated from a new quantum technologies facility to be built at the University of Glasgow.

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, DSTL and the KTN.

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Notes to Editors

- The Quantum Enhanced Imaging Hub’s industry partners and collaborators are:
  - CENSIS
  - Defence Science and Technology Laboratory (DSTL)
  - Government Office for Science
  - KTN
  - Scottish Enterprise
  - Scottish Funding Council
  - Andor Technology Ltd
  - AstraZeneca plc
  - AWE
  - BP British Petroleum
  - Bridgeporth
  - Cascade Technologies Ltd
  - Chromacity Ltd.
  - Coherent Scotland Ltd
  - Compound Semiconductor Tech Gl
  - e2v technologies plc
  - Fraunhofer UK
  - GE Healthcare
  - Helia Photonics
  - Honeywell Hymatic
  - Horiba Jobin Yvon IBH Ltd
  - ID Quantique
  - Kelvin Nanotechnology Ltd
  - Lein Applied Diagnostics Ltd
  - M Squared Lasers Ltd
  - Malvern Instruments Ltd
  - Micro-g LaCoste
  - mLED Ltd
  - OPTOS plc
  - Quantum Imaging Ltd
  - Renishaw Plc
  - Selex-ES Ltd
  - ST Microelectronics Limited
  - Thales Optronics Ltd
  - Toshiba Medical Visualization
  - Tullow Oil
  - UK Astronomy Technology Centre