



QUANTIC

The UK Quantum Technology Hub
in Quantum Enhanced Imaging

Quantum enhanced multidimensional sensing

A deeper understanding of the quantum mechanics has led to uniquely quantum ways of estimating parameters with precisions impossible classically. These parameters can arise in scenarios ranging from multipixel imaging and microscopy to detection of gravity and the sensing to minute magnetic fields.

QuantIC is studying the possibilities of using quantum mechanics to provide a mean for enhanced sensing. We are also investigating how the dimensionality of the system, for example the number of pixels to be sensed, contributes positively in the sensing procedure. We are also exploring additional functionalities that only quantum mechanics can provide, such as covertness and secrecy, in the context of sensing and imaging.

Within QUANTIC, we are developing sub shot noise pump-probe microscopy and imaging, as well as covert sensing and imaging. Sensing with quantum enhanced precision has the potential to provide substantial advances in the fields of:

Technology and security

- Low energy medical imaging
- Covert sensing
- High performance analysis of chemical composition

Fundamental physics


- Gravitational waves detection
- Opto-mechanical systems employed in fundamental studies
- Quantum communications
- Astronomy
- Remote sensing
- Light detection and ranging (LIDAR)
- Medical and security imaging



QuantIC has a £4M Partnership Resource Fund to support industry led projects to develop our new technology and facilitate its translation to market. For more information, please contact:

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