



QUANTIC

The UK Quantum Technology Hub
in Quantum Enhanced Imaging

“Q” Light Source : Quantum Imaging beyond the shot noise limit

Shot noise is an issue for imaging applications, especially in low light. Now imagine a light source that is even cleaner than a laser that can be engineered to suppress noise to below the shot noise limit. With “Q”, low light imaging is taken to the quantum limit to deliver precision measurement.

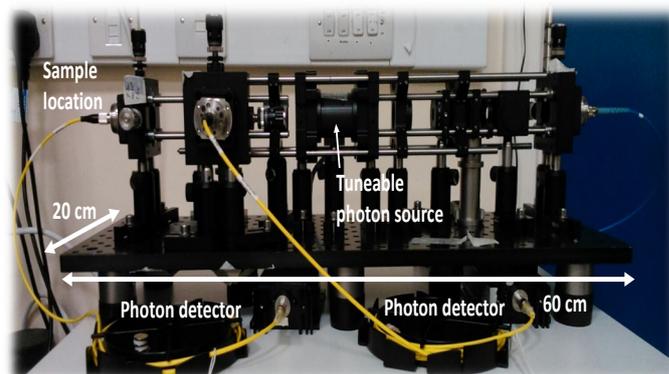
Lasers are effective, they are directional and extremely well behaved in almost all optical properties. However the measurement of laser intensity is uncertain, varying slightly from pulse to pulse. This noise arises from the particle (photon) nature of light, and leads to the fundamental limit in precision that we can ever achieve with a laser: shot-noise. This can be an issue in scenarios such as spectroscopy, absorption on imaging and low light range imaging.

At QuantIC we have engineered “Q”, a source of light that delivers exactly the number of photons that we want for the job thus going below the shot-noise limit. By harnessing the precision of the single photon, we not only suppress noise to below the shot noise limit, but can reach the ultimate level of precision allowed by quantum mechanics.

QuantIC is seeking to develop sub shot noise imaging technology demonstrators in both general and specialised applications of visible, NIR and long wavelengths. We also welcome exploration of applications where the technology can deliver superior performance in areas such as:

- Bio imaging
- Healthcare diagnostics
- Security and defence
- Precision manufacture

The Mk II prototype



QuantIC has a £4M Partnership Resource Fund to support industry led projects to develop our new technology and facilitate its translation to market commercialisation.

For more information , please contact:

Dr Michael Fletcher
QuantIC Business Development Manager
michael.fletcher@glasgow.ac.uk

Dr Jonathan Matthews
Project Technology Lead
jonathan.matthews@bristol.ac.uk

Professor John Rarity
Project Technology Lead
john.rarity@bristol.ac.uk

www.quantific.ac.uk

 @QuantIC_QTHub