



QUANTIC

The UK Quantum Technology Hub
in Quantum Enhanced Imaging



Non-linear Optics

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Imagine if the technology in mobile phone cameras could visualise infra-red light, seeing chemicals directly and being applied to medical treatments? There are numerous advantages if modern imaging technologies could be converted to see beyond visible wavelengths. The University of Southampton, QuantIC and Covision Ltd, has developed a method for Infrared wavelength conversion.

Infrared wavelengths are vital for modern devices, being employed for applications ranging from testing carbon fibre components to satellite imaging for measuring climate changing chemicals. However infra-red wavelengths suffer major hurdles to deployment due to the cost and performance limits of suitable detectors and laser sources.

QuantIC, in partnership with Covision Ltd, have developed nonlinear optical materials that enable wavelength conversion for infra-red free-space and fibre-optic devices at record-breaking efficiencies. These commercially available components offer cost-effective access to novel applications such as telecoms data detection using silicon photodiodes. Quantic is expanding these capabilities and strengthening UK sovereign capability in this developing field.

Specifications

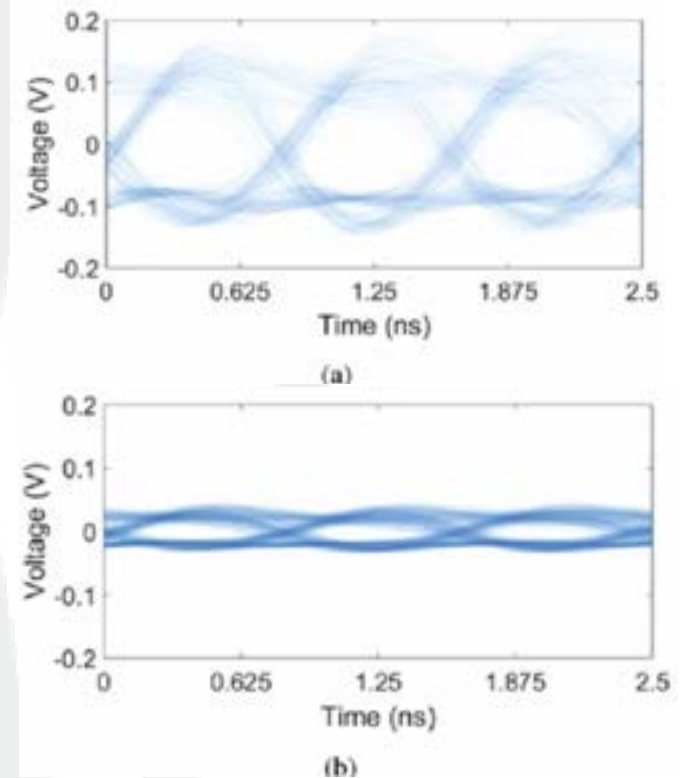
Photon detection of 1.5 μ m - 4.5 μ m

Detector speeds above 1GHz

Dark count rates below 1kHz

Latest Publication:

Upconversion detection of 1.25 Gb/s mid-infrared telecommunications using a silicon avalanche photodiode; Alan C Gray, Sam A Berry, Lewis G Carpenter, James C Gates, Corin BE Gawith, Peter GR Smith; Optics Express Vol 28, Issue 23, 2020



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