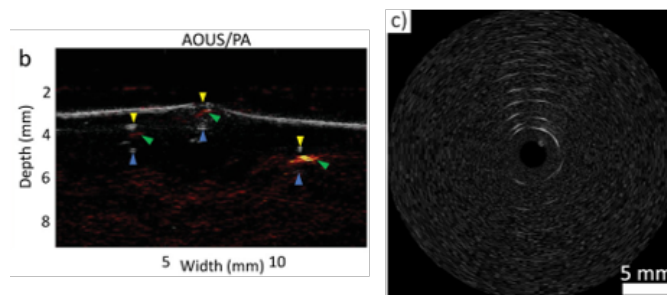
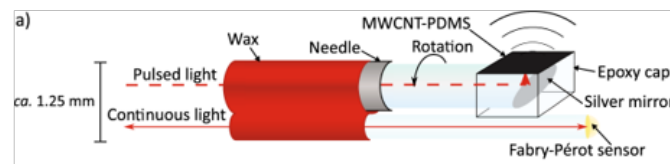
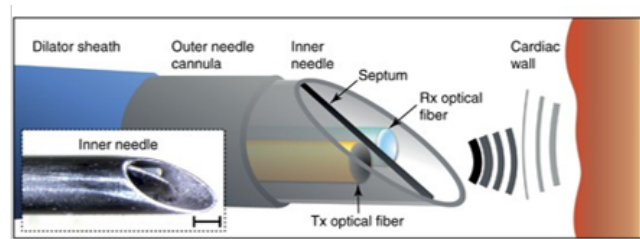




Optics and Photonics Group Lunchtime Seminar “All-optical ultrasound imaging for minimally invasive surgical guidance”

Richard Colchester
University College London



13:30 Wednesday 18 May 2022
B3 Life sciences building
All Welcome

http://optics.nottingham.ac.uk/wiki/Talks_2022

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MS Teams link

All-optical ultrasound imaging, where ultrasound is both generated and received using light, is emerging as a modality well-suited to application in minimally invasive surgery. In these procedures surgeons rely on imaging for diagnosis and guidance, however, limited space for devices mean that surgeons commonly rely on low resolution external imaging. Ideally, miniaturised imaging devices would be employed alongside surgical tools to provide real-time diagnosis and guidance. All-optical ultrasound can fulfil this need. By using optical fibres as a substrate for all-optical ultrasound imaging transducers, highly miniaturised devices can be manufactured. These devices can provide high resolution imaging with centimetre scale imaging depths and submillimetre lateral device dimensions. Further, complementary optical imaging and therapeutic modalities can be incorporated using the same optical fibres. At UCL I have been developing imaging technologies based on this paradigm. In this talk I will introduce some of the work being carried out, which includes side-viewing all-optical ultrasound transducers for intraluminal and vessel wall imaging, multimodality ultrasound and photoacoustic imaging, and real-time laser tissue ablation monitoring using an all-optical device.