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Optical sectioning with induced quantum optical coherence

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By making use of frequency-entangled photons we present a new type of optical coherence tomography (OCT) scheme, where the reflectivity of the sample translates in a change of coherence. We call this new approach induced optical coherence tomography (iOCT). This new scheme allows probing the sample with one wavelength and measuring light with another wavelength. As a result, we can gain penetration depth into the sample by using longer wavelengths, while still using the optimum wavelength for detection. Regarding the future work, we show the possibility to integrate this new iOCT scheme in a micro-chip by making use of semiconductor entanglement sources.

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD, N/A)?

N/A

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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