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Development of a Supercontinuum based Nonlinear Optical Microscopy setup

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Nonlinear Optical microscopy (NLOM) has been used in recent years in probing biological tissues both *in vivo* and *in vitro* due to its numerous advantages such as intrinsic 3D imaging with submicron spatial resolution, decreased photodamage, increased depth of penetration and the ability to perform label-free imaging. The integration of a broadband supercontinuum (SC) light source within a NLOM setup provides the versatility of accommodating multiple imaging modalities in a single setup, while also increasing the intensity of the output signal as a result of the high peak intensity achieved through temporal pulse compression of the SC pulse. This research focuses on the development of a SC based NLOM setup with a broadband source generated from a passive highly nonlinear All Normal Dispersion Photonic Crystal Fiber (ANDi-PCF). Spectral phase distortions caused by the nonlinear properties in the PCF are also characterized and corrected using a Multiphoton Intrapulse Interference Phase Scan (MIIPS) compression algorithm. Preliminary results will be shown and discussed.

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

Yes

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

PhD

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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