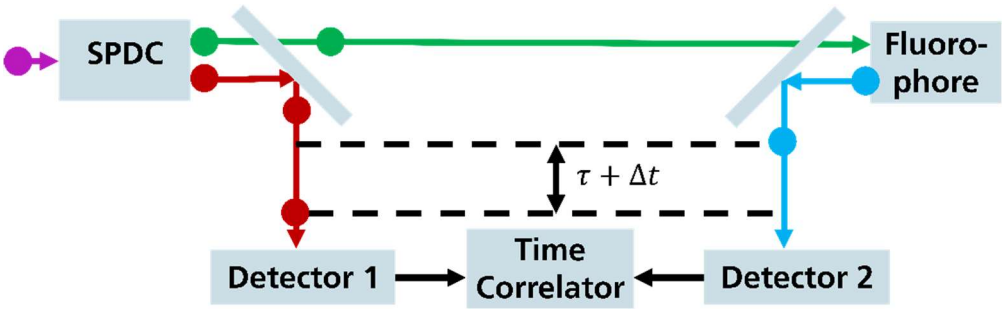
Service ID: WPX-XX

Fluorescence Lifetime Microscopy with Entangled Photon pairs

Input for the Detailed description field on the website (1 page)

Cover:



Principle of Fluorescence Lifetime Microscopy with Entangled Photons

Overview

The utilization of the time-frequency correlation of entangled photon pairs enables time-domain fluorescence lifetime microscopy (FLIM) without the need of pulsed illumination of fluorophores. It reduces considerably the risk of photobleaching because continuous-wave illumination with a photon pair intensity of less than 1 nW is sufficient to facilitate this technique. Furthermore, it enables spectroscopic approaches due to the simple tunability of the excitation wavelength by optimization of the photon pair generation process.

Field of Application and applied technology

- Fluorescence Imaging

Specifications

- temporal resolution: 1 ps
- lateral resolution: < 2 µm
- illumination power on fluorophore: < 1 nW (cw)
- excitation wavelength: demonstrated for 765 nm – 803nm; customizable for other wavelengths
- detectable fluorescence wavelength: demonstrated for 807 nm – 900nm; customizable for other wavelengths