Supercontinuum based mid-IR imaging spectroscopy for cancer detection - DTU Orbit (10/03/2019)

Supercontinuum based mid-IR imaging spectroscopy for cancer detection
The mid-infrared (IR) spectral region is of significant technical and scientific interest because most molecules display fundamental vibrational absorptions in this region, leaving distinct spectral fingerprints. To date, the limitations of mid-IR light sources, such as thermal emitters, low-power laser diodes, quantum cascade lasers and synchrotron radiation, have precluded mid-IR applications where the spatial coherence, broad bandwidth, high brightness and portability of a supercontinuum laser are all required. In an international collaboration in the EU project MINERVA [minerva-project.eu] DTU Fotonik has now demonstrated the first optical fiber based broadband so-called supercontinuum light source, which covers 1.4-13.3 μm and thereby most of the molecular fingerprint region [1]. This ultra-fast light source is the basic component in the mid-IR camera developed in MINERVA for early cancer detection with mid-IR imaging spectroscopy.

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