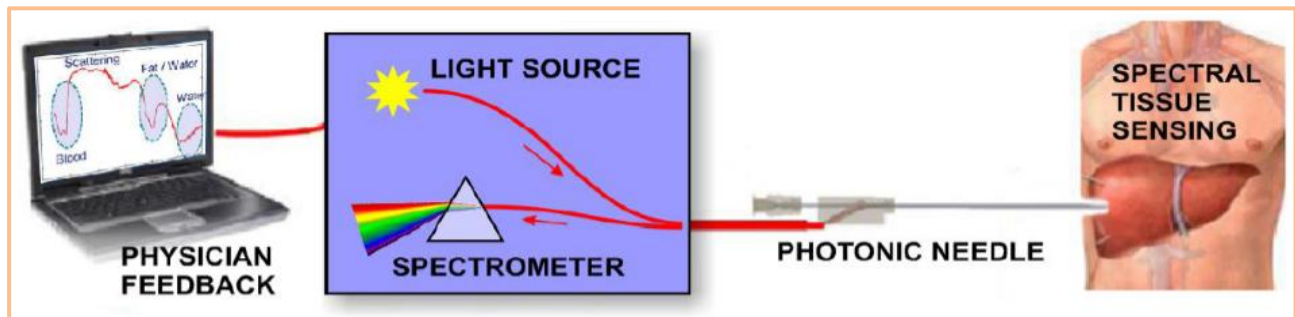


InSPECT:

The overall goal of InSPECT (Integrated Spectrometers for Spectral Tissue Sensing) is to realize a miniature broadband solid-state light source and a miniature low-cost spectrometer operating in the VIS/NIR from 400 to 1700nm. One of the approaches of InSPECT to realize the miniature spectrometer device is the development of a microSpectrometer based on the miniaturization and monolithic integration of diffractive dispersive elements and VIS+NIR photo-detectors in a small volume (cubic inch) device and another one is the development of a nanoSpectrometer based on a photonic integrated circuit.

Spectral Tissue Sensing

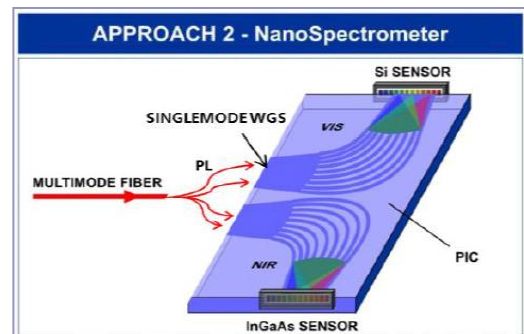


Spectral tissue sensing device, reporting real-time feedback on tissue type, blood oxygenation, etc. to a physician.

Aifotec role: NanoSpectrometer Packaging

The nanoSpectrometer approach involves the development of new photonic building blocks for a miniature spectrometer based on photonic integrated circuits. In this part of the project a revolutionary approach will be used, working on new photonic building blocks that ultimately enable a full integration of a spectrometer into a photonic IC.

The specific objectives of this approach are:



- Realization of PIC building blocks enabling an integrated spectrometer (400-1700nm) based on hybrid integration of tunable wavelength filters
- Efficient and robust multi-mode to single-mode and single mode to chip fibre coupling, for low-loss coupling of the disposable photonic needle to the single-mode photonic IC
- Realization of an industrially feasible packaging technology for the photonic IC.