

## TECHNO OFFER

# NANOPTiX: innovative probe for *in vivo* dosimetry in radiotherapy

*in vivo* dosimetry / endoscopic dosimetry / radiotherapy /  
oncology / probe / sensor / optical fiber



## CONTEXT

Over the past ten years, *in vivo* and real-time dosimetry has become mandatory to control that the dose received by the patient in radiotherapy is indeed the prescribed dose. For this purpose, fibre optic probes capable of detecting medical radiation locally have been developed. However, current sensors are limited to a single-point measurement, because a fiber bundle is no longer compatible in size with endoscopy.

## DESCRIPTION

NANOPTiX technology has been developed to overcome these limitations by providing a more reliable and accurate tool for ionizing radiation dosimetry. It is a fibre optic probe that combines, thanks to its structure, a high measurement quality and a very small size. Indeed, the particular structure of the material assembly allows a higher luminescence signal at the output of the optical fiber and an increased sensitivity of the probe. In addition, this structure allows the use of small fibers and therefore to obtain an ultra-compact multi-sensor adapted for *in vivo* in real time endoscopic dosimetry.

## COMPETITIVE ADVANTAGES

- Very small (<100 µm diameter) and minimally invasive probe
- Better sensitivity and spatial resolution (up to 50 µm) thanks to the use of a multi-sensor probe
- Adaptable to the energy range and type of radiation to be measured by choosing the appropriate scintillator
- Ease of production and low cost (use of silica fibers)



## Markets & applications

### Medicine - Oncology:

- ❖ Brachytherapy and external radiotherapy
- ❖ Very localized and high dose gradient therapies: proton therapy and hadron therapy
- ❖ MRI-guided radiotherapy (MRI-LINAC)
- ❖ Microbeam radiation therapy



## Development stage

Technology ready for clinical testing:  
prototyping of medical probes in progress



## Research team

FEMTO Sciences & Technologies Institute  
University of Franche-Comté - CNRS



## Intellectual property

Patent registered in France on November  
30, 2018



## Target partnership

Patent licensing

## CONTACT-US

**Thomas BLUM**

Business Developer

+33 (0)6 17 06 68 07

✉ thomas.blum@sayens.fr



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Maison Régionale de l'Innovation - 64 A rue Sully - CS 77124 - 21071 Dijon Cedex - Tel : +33 (0)3 80 40 34 80  
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