# RaDFOS – Radiation Dosimetry with Fiber Optic Sensors

Short description of the aim(s) of the Project: RaDFOS aim to develop of a new extrinsic optical fiber nano-dosimeter that will meet the needs for present and future energy machines, and will overcome the limitations suffered by the majority of dosimetry approach available on the market at H and UH dose level

Top view
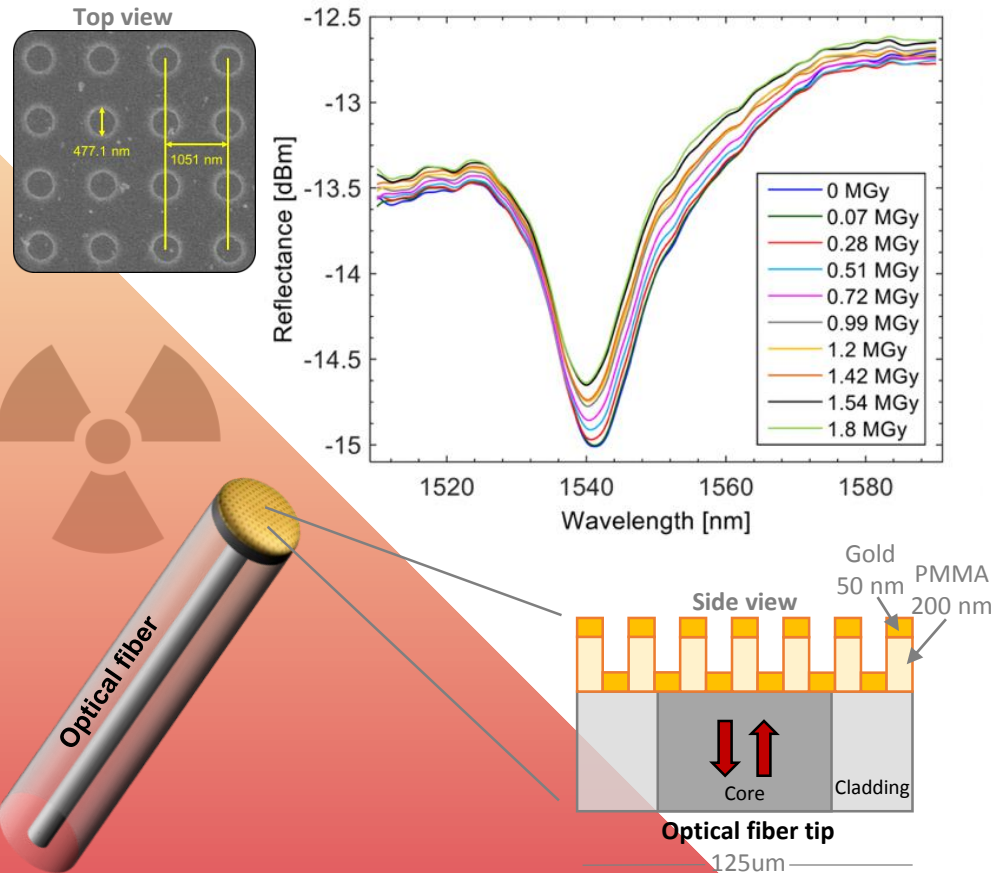
Current status of progress:

% of deliverables completed so far: **70%**

% of budget (100 kEUR) spent so far: **60%**

Any remaining uncertainties w.r.t planned deliverables

- ☒ No
- ☐ Yes

Using students (PhD/MSc/BSc) in the project?

- ☒ No (BSc students, limited mobility due to COVID-19)
- ☐ Yes

Any interactions with other funded ATTRACT projects so far?

- ☐ No
- ☒ Yes; NanoRadMet (irradiations and nano-layers)

Optical fiber

Side view

Gold 50 nm   PMMA 200 nm

Core   Cladding

Optical fiber tip

125um

If your project were to be selected for ATTRACT Phase 2:

How would your technology scale up to become an industrial product/system?

Scale up to industrial level is certainly achievable fulfilling:

- the consolidation of sensor manufacturing process (reproducibility, calibration, costs)
- reduce readout system cost with a custom made optoelectronic system (studies on going)

Moreover, enhance the sensitivity to low dose level (version 2.0 of the prototype under design) could open additional market

With who you would need to partner for this to happen? (No names, just profiles of type of organizations)

Nano-tech company to standardize the fabrication process

Optoelectronic company for custom readout optimization

Have you already discussed this with KT Group?

Not yet

What applications will you demonstrate with value for science, industry and society? (Examples)

Particle accelerators, Radiation test facilities, Nuclear energy reactor, Industrial processes involving ionizing irradiation, Medical applications

Any comments, remarks or observations you would like to make to CERN?

Need to use the funds until July 2020 – extension request being prepared.

Certain delay to be accounted due the present COVID-19 situation in Italy.