

GEMTEQ: GEMPix detector for microdosimetry with tissue-equivalent gas

Short description of the aim(s) of the Project: Development of an innovative detector (the GEMTEQ) for microdosimetry, which is important to better understand radiation effects.

Current status of progress:

% of deliverables completed so far: 70% (CERN: 60%, ARTEL: 90%)

% of budget (100 kEUR) spent so far: 75% (CERN: 70%, ARTEL: 95%)

Any remaining uncertainties w.r.t planned deliverables

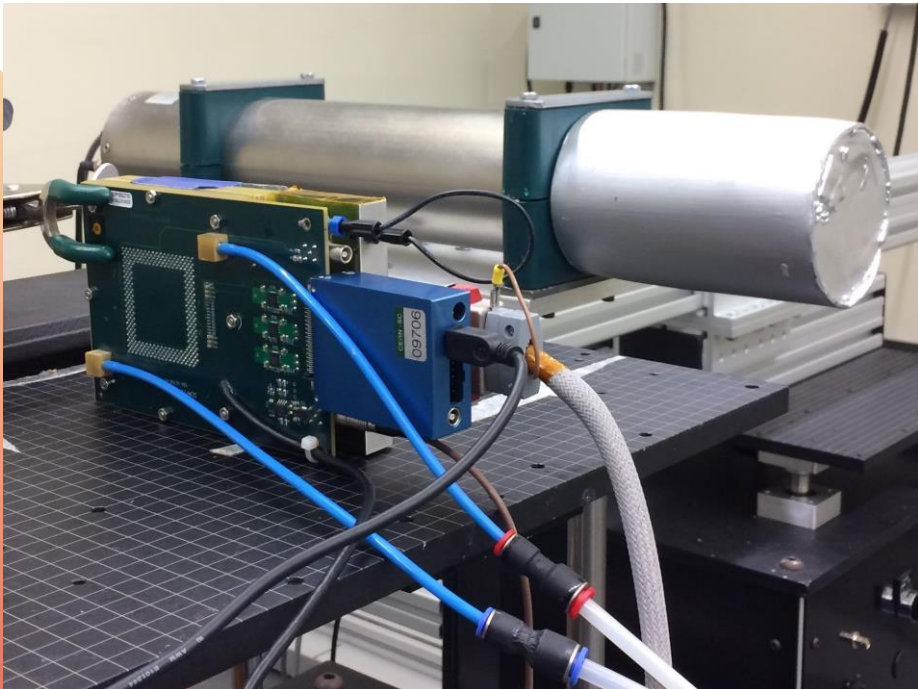
- No
 Yes

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

- No
 Yes

Any interactions with other funded ATTRACT projects so far?

- No
 Yes; LaGEMPix



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

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

An upgraded GEMTEQ could be used to measure the radiation quality in radiation therapy routinely, which would require an increased detector area to cover the maximum clinical field size and the development of a sealed detector to avoid the installation of the gas system inside the treatment room. Some detector components should be changed to more “standard” parts for easier production.

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

A hadron therapy centre and a company developing and commercializing instrumentation for dosimetry.

Have you already discussed this with KT Group?

No

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

Changes of the radiation quality of a hadron beam in depth are mostly not considered at the moment. The GEMTEQ can be a tool to measure these changes and possibly to include measurements of the radiation quality in quality assurance and treatment planning.

Any comments, remarks or observations you would like to make to CERN? Experimental activities outside CERN (obviously) suspended