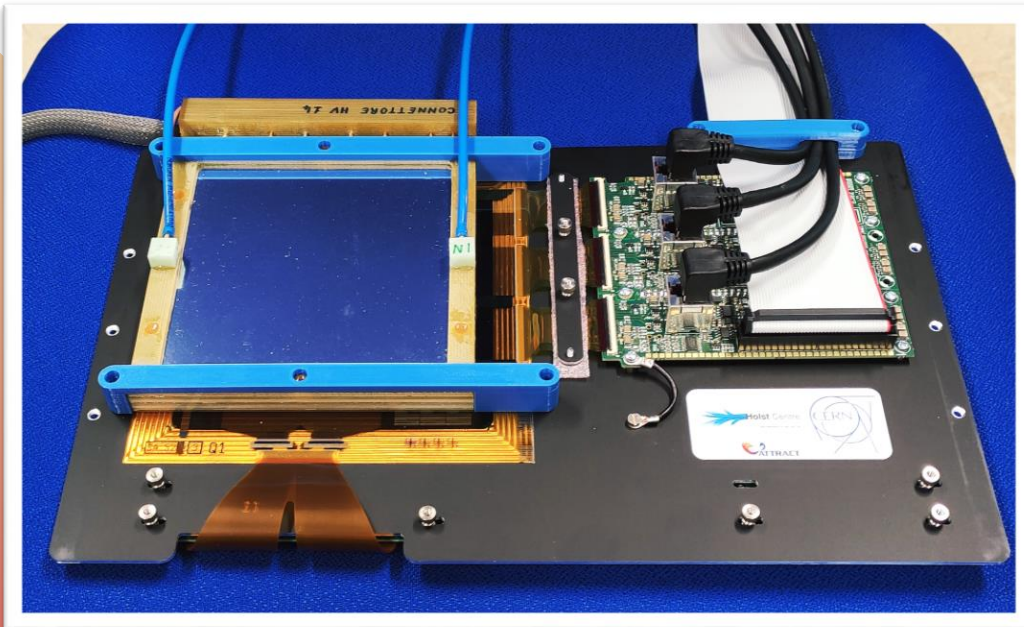# A Large Area GEMPix detector with optical readout for hadrontherapy

Short description of the aim(s) of the Project: development of the next generation of the state-of-the-art GEMPix detector for application in hadron therapy by introducing an innovative large area readout technology.

Current status of progress:

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

% of budget (100 kEUR) spent so far: 33% (CERN:10%, TNO: 75%)

Any remaining uncertainties w.r.t planned deliverables

[X] No

[ ] Yes

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

[ ] No

[X] Yes, a PhD student

Any interactions with other funded ATTRACT projects so far?

[ ] No

[X] Yes, GEMTEQ, H2I2 (Hybrid high-precision in vivo imaging in particle therapy), ESSENCE (high resolution X-ray detectors)

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

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

Larger size detector (20 x 20 cm^2) to cover the maximum clinical field size in hadron therapy and to develop a sealed detector to avoid the installation of the gas system inside the treatment room.

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?

Yes, this project has been co-funded by KT-MA.

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

LaGEMPix can have direct applications in medical physics and imaging in a variety of markets, for example in Quality Assurance (QA) procedures in hadron therapy, beam monitoring in radiotherapy and accelerator physics, proton or X-ray radiography and non-destructive tests.

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