



Contribution ID: 87

Type: Poster

## Development of a fast Proton Range Radiography system for quality assurance in hadrontherapy

We describe the development of a Proton Range Radiography system with an imaging area of 30x30 cm<sup>2</sup> for two dimensional mapping of the integrated density in a target.

Proton transmission radiographic images are produced by measuring with a pair of position-sensitive detectors (GEM chambers) the direction of the protons transmitted through the patient, and with a stack of scintillators the residual range of the protons leaving the patient. To match the data rate requirements of an in-beam diagnostic, a novel data acquisition system for the tracking detectors has been designed to operate at one MHz data flow. Laboratory tests exposing the GEM detector with high flux X-rays demonstrate the fast response of the new data acquisition system. Images of several phantoms have been recorded to demonstrate the GEM position accuracy.

### quote your primary experiment

Tera-Aqua

**Primary author:** BUCCIANTONIO, Martina (TERA Foundation (IT))

**Co-authors:** WATTS, David (TERA Foundation (IT)); SAULI, Fabio (TERA Foundation (IT)); KIEFFER, Robert (TERA Foundation (IT)); AMALDI, Ugo (TERA Foundation (IT))

**Presenter:** BUCCIANTONIO, Martina (TERA Foundation (IT))

**Track Classification:** Medical Applications