
Update on the Bergen proton CT project

Helge Pettersen^{*1,2}, Ilker Meric², and Dieter Röhrich³

¹Haukeland University Hospital – Norway

²Western Norway University of Applied Sciences – Norway

³University of Bergen – Norway

Abstract

A digital tracking calorimeter for proton CT is currently under development by the University of Bergen and Western Norway University of Applied Sciences: It is a pixelated MAPS range telescope.

The first generation digital tracking calorimeter has been investigated as a proof-of-concept detector, where a large number of protons are tracked concurrently in a pixelated range telescope for estimation of residual ranges and initial vectors of all incoming protons. The first generation digital tracking calorimeter was, however, designed for usage in high energy physics experiments, and consequently a second generation is currently under construction where the materials and geometry are more adapted to the proton CT regime.

In this talk, an update on the design specifications of the layered pixel range telescope for proton tracking will be given, together with estimated capabilities regarding the range resolution and proton intensities as well as experimental characterizations on the fast 1-bit monolithic active pixel sensor 'ALPIDE' in charged particle beams.

*Speaker