

## **Particle imaging during hadrontherapy treatment**

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Treatment of cancer tumour by particle like proton or light ions is now becoming very frequent using particle accelerators. However, the monitoring of the patient dose delivery and optimization is one of the main issues of such innovative technique.

The scope of this presentation is to summarise the « state of the art » of technical developments imposed by the various needs and constraints associated with the real time dosimetry measurement and control. It will be illustrated by some R&D developments coming from the HEP community.

Details will cover various topics like detection and tracking of organ motion, advanced technologies for a dedicated in-beam hadron PET systems for dose quantification, Proton Computed Tomography developments.