

Protonica

Reinventing proton therapy imaging for universal access to advanced cancer treatments

In a nutshell

Cancer is the 2nd leading cause of death worldwide (after cardiovascular diseases). It's estimated that one in every two people will develop some form of cancer in their lifetime. After curing the primary cancer, the risk of developing a secondary cancer is 18% attributed to the genetics, lifestyle, but also due to the secondary effects of the chemo/radiotherapy used during the cure. Fortunately, a novel type of treatment named proton therapy dramatically reduces this risk, while offering perspective for higher efficiency. Proton therapy is a form of radiation therapy which uses protons instead of X-ray to precisely target cancer cells, sparing the healthy tissues. This focused treatment reduces side effects and vastly improves quality of life. However, there are still several hurdles to overcome to make this novel cancer care more affordable and accessible. Protonica aims to accelerate the development and availability of proton therapy by upgrading the imaging system required for accurate dose delivery and its next generation treatment method.

Why is our technology important?

Proton therapy remains a costly option for cancer treatment. Due to its complex infrastructure, building a proton therapy facility currently costs more than 10x a conventional radiotherapy centre. Proton therapy uses multiple detectors along the beam to characterise the beam shape, intensity, and dose crucial to ensure the quality of the treatment. Current solutions have limited spatial and temporal resolutions preventing the optimal utilisation of the proton beam to treat the patient. Protonica addresses these issues head on through an advanced imaging system made from a resin which offers superior resolution and speed – at a price point matching the lowest option currently available.

The benefits of our solution

The new Protonica imaging system doesn't just offer a massive upgrade in accuracy and speed leading to more effective cancer treatments; its resin-based sensitive area can be easily replaced when getting damaged, reducing downtime and maintenance costs.

- 5-50x higher spatial resolution compared to current solutions
- 10x-1000x faster monitoring rate compared to current solutions
- Compatible with intense beams required for *FLASH* therapy the future of proton therapy.

Keywords

Proton therapy, advanced beam monitoring systems, cancer treatment, radiotherapy

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