



Contribution ID: 2171 Contribution code: SUPG028

Type: Poster Presentation

Development of novel beam instrumentation for in vivo and in vitro end stations for Laser-hybrid Accelerator for Radiobiological Applications

Sunday, 19 May 2024 16:00 (2 hours)

Radiotherapy is an effective, non-invasive, widely used treatment for cancerous tumors that uses x-ray photon, electron and ion beam sources. The Laser-hybrid Accelerator for Radiobiological Applications (LhARA) is a proposed novel laser-driven accelerator system under development that aims to deliver a multi-ion Particle Beam Therapy (PBT) technique. This study aims to develop a novel technique to deliver different light ion minibeam to the in vivo and in vitro end stations. A novel technique will produce the desired beams and minibeam by magnetically focusing the incoming proton and light ion beams, without collimation. This solution focuses the beam magnetically to the required 1 mm spot distribution with an energy of 15 MeV, for the low energy in vitro end station's experimental requirements. A novel spot-scanning beam delivery modality simulation is also being developed. This simulation allows the beam delivery system to deliver the beam to spots in the treatment field, through a dynamic rotational motion.

Footnotes

Funding Agency

Paper preparation format

LaTeX

Region represented

Europe

Primary author: RAZAK, Rehanah (Imperial College London)

Presenter: RAZAK, Rehanah (Imperial College London)

Session Classification: Student Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D11 Code Developments and Simulation Techniques