Second Workshop on Particle Minibeam Therapy



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FLASH at the TRIUMF Proton Therapy Research Centre

The Proton Therapy Research Centre (PTRC) at the TRIUMF particle accelerator center in Vancouver, British Columbia, Canada, conducts pre-clinical and dosimetry research with the proton therapy beam line that clinically treated ocular cancer between 1995 and 2018. Extracted proton energies between 116 MeV and 70 MeV are available, with most of the work being conducted at the former treatment energy of 74 MeV. Passively scattered and modulated conventional proton therapy beams are available with a transverse beam size up to 25 mm in diameter and a spread-out Bragg peak (SOPB) up to 27 mm. Recent upgrades and development work now allow the delivery of FLASH mode ultra-high dose rates up to 110 Gy/s over an area of 20 mm^2. SOPBs in FLASH mode are achieved using static ridge filters for which a fast and reliable in-house production process has been developed. FLASH dose rates can be maintained with a spread-out Bragg peak of up to 5 mm allowing FLASH irradiation of small volume samples.

Primary author: BÉLANGER-CHAMPAGNE, Camille (TRIUMF Life Science Division)

Co-authors: RODDY, David (TRIUMF Life Science Division); PENNER, Crystal (TRIUMF Life Science Division); TATTENBERG, Sebastian (TRIUMF Life Science Division); TRINCZEK, Mike (TRIUMF Life Science Division); YEN, Stan (TRIUMF Life Science Division); BLACKMORE, Ewart (TRIUMF Life Science Division); HOEHR, Elisabeth (TRIUMF Life Science Division)

Presenter: BÉLANGER-CHAMPAGNE, Camille (TRIUMF Life Science Division)

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