



Contribution ID: 186

Type: Speed talk

FLASHlab@PITZ: Preparations for First Beam Experiments on FLASH Radiation Therapy at PITZ

Thursday 8 September 2022 10:44 (3 minutes)

FLASHlab@PITZ is an R&D platform for electron FLASH and very high energy electron radiation therapy and radiation biology, under preparation at the Photo Injector Test facility at DESY in Zeuthen (PITZ).

The available beam parameters are unique: ps scale electron bunches with up to 5 nC bunch charge at MHz repetition rate in bunch trains of up to 1 ms in length, currently 22 MeV (upgrade to 250 MeV planned). Individual bunches can provide peak dose rates up to 10^{14} Gy/s and 10 Gy can be delivered in ps. On request, each bunch of the bunch train can be guided to a different transverse location, so that either a “painting” with micro beams or a cumulative increase of absorbed dose using a wider beam distribution can be realized at the tumor. Full tumor treatment can be completed within 1 ms, mitigating organ movement issues.

With extremely flexible beam manipulation capabilities, FLASHlab@PITZ will be able to cover the current parameter range of successfully demonstrated FLASH effects and extend the parameter range towards yet unexploited short treatment times and high dose rates.

A summary of the plans for FLASHlab@PITZ and the status of its realization will be presented.

Summary

Primary author: STEPHAN, Frank (DESY)

Presenter: STEPHAN, Frank (DESY)

Session Classification: Session 2: Beam Diagnostics

Track Classification: ST - Diagnostics