

AbstractID: 9206 Title: OPTIS2 - PSI's new ocular proton therapy facility

Since 1984 nearly 5000 patients with eye tumors, primarily ocular melanomas, were treated by a 72 MeV Phillips cyclotron within the OPTIS program (local tumor control 98%@10y). In the frame work of the PROSCAN project a dedicated superconducting cyclotron (COMET) is in clinical operation since February 2007. The aim of OPTIS2 project, an entirely new facility for the treatment ocular tumors with COMET, is to match the clinical success of OPTIS.

Using the COMET/PROSCAN facility the beam intensity at the start of the OPTIS2 nozzle is 30 times lower than that currently used at the OPTIS facility. If we would keep using the OPTIS nozzle the treatment time would increase dramatically. Therefore, the new nozzle utilizes a double scattering technique with multiple-ring second-scattering foils which increases the nozzle efficiency by factor of 10, keeping the maximum treatment time under one minute. Due to the difference in scattering techniques the OPTIS2 and OPTIS beams are not identical. But the major characteristics, distal- and lateral- dose fall-off are comparable. The flatness and symmetry have actually been improved.

In OPTIS2 reliance on a single analog X-ray film provider and extensive operator experience will be diminished by introducing digital imaging and computer aided semi-automatic patient positioning. A new imaging and patient positioning concept has been developed, bringing together techniques and software already clinically tested at the Center de Protontherapie Orsay (France) and the Hahn Meitner Institut (Germany).

OPTIS2 is designed and built from scratch, providing a continuation of the existing proton therapy program OPTIS, with comparable beam characteristics, whilst obtaining its protons from COMET. Beam commissioning and system testing is currently underway. A first patient treatment is scheduled for summer 2008.