



Contribution ID: 146

Type: Oral

Nanoparticle Dose Enhancement of Synchrotron Beams on the IMBL

Thursday, 26 November 2015 11:30 (20 minutes)

Nanoparticles with high atomic number (Z) have a larger x-ray cross section than biological tissues. Synchrotron beams interact with the nanoparticles to produce Auger electrons which deposit their energy over a short range, typically less than a micron. This characteristic offers the ability to enhance the dose delivered to tumors by synchrotron broad beam (BB) or microbeam radiation therapy (MRT). High Z nanoparticles can also be used as a contrast agent for in-vivo x-ray imaging during the treatment setup.

Here we present our initial findings on the dose enhancement effect for synchrotron beams on the IMBL using UV/Vis spectroscopy with radiosensitive dosimeters irradiated with and without nanoparticles.

Keywords

Nanoparticles, Dose Enhancement, IMBL

Primary author: Mr GAGLIARDI, Frank (William Buckland Radiotherapy Centre)

Co-authors: Dr STEVENSON, Andrew (Australian Synchrotron/ CSIRO); Prof. GESO, Moshi (RMIT University); Prof. FRANICH, Rick (RMIT University)

Presenter: Mr GAGLIARDI, Frank (William Buckland Radiotherapy Centre)

Session Classification: Radiotherapy and Radiobiology

Track Classification: Radiotherapy and Radiobiology