

On the influence of chemotherapy on the Bragg peak parameters in the water cube model

Tuesday, 13 October 2020 18:55 (20 minutes)

Both radiation therapy and chemotherapy are efficient methods of cancer treatment [1]. Efficiency of the hadron therapy is based on the phenomenon of the Bragg peak. Parameters of the Bragg peak such as its distance from the entrance point and maximum magnitude depend on kind of particles in the therapeutic beam and its energy, physical properties of target medium and its chemical composition [2]. During chemotherapy and some time after it chemical composition of tissues may be changed so it may leads to changes of the Bragg peak parameters in the case of combined treatment. Influence of the chemotherapy on the dose-depth distribution is studied. The computational models are proposed and different schemes of chemotherapy have been considered for the proton and carbon ion beams. The study is based on the numerical simulations with the software package Geant4.

References

1. Jones B. Clinical Oncology, 2008, 20, p.555.
2. O.Kalatusha, O.Ruban, S.Nemnyugin. Math. Mod. Geom. 2016, 4:1. p.41.

Primary author: NEMNYUGIN, Sergei (Saint-Petersburg State University)

Presenter: NEMNYUGIN, Sergei (Saint-Petersburg State University)

Session Classification: Poster session 6

Track Classification: Section 8. Nuclear medicine.