Contribution ID: **49** Type: **Poster**

How LiF material can help to more convergence of neutron beam (J/φ) on the tumor in BNCT ?

Thursday, 3 September 2015 16:30 (1h 30m)

In order to treatment of deep brain tumors, BNCT is a well method. BNCT consists of two steps. First, 10B carrier drug is injected in the patient body, then the patient is irradiated with thermal or epithermal neutrons. Recently, studying on production of neutrons by accelerators to use in BNCT treatment is growing up. One of the famous reactions using accelerator's beam for neutron production is 7Li(p,n)7Be. The relatively low energy neutrons emitted from this reaction, enable us to use less moderation. In this paper, a new BSA based on 7Li(p,n)7Be reaction for irradiation of 2.5 MeV and 20 mA proton beam is proposed. This BSA consist of 20 cm D2O as a moderator, graphite as a reflector, Cd as a thermal neutron filter and BeO as a collimator. The aim of this paper is the increasing of neutron beam convergence (J/φ) by means of adding different thickness of LiF layers to the end of configuration, while J/Φ has already been satisfied for proposed BSA. Finally, a simulated Snyder head phantom is used to calculate the dose distribution inside of tumor and healthy head tissue have been calculated. It has been showed that the increasing of J/Φ, as an important parameter in the BNCT, lead us to have better performance of beam and survival of healthy tissue surrounding the tumor. The Monte Carlo MCNPX code is used for presented results.

Primary author: Mrs AHMADI GANJE, Zahra (Faculty of Physics, Yazd University, Yazd, Iran)

Co-author: ESLAMI-KALANTARI, Mohammad (Faulty of Physics, Yazd University, Yazd, Iran)

Presenter: ESLAMI-KALANTARI, Mohammad (Faulty of Physics, Yazd University, Yazd, Iran)

Session Classification: Poster