

عنوان مقاله:

A Monte Carlo simulation study on the secondary neutron dose in passive proton therapy

محل انتشار:

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خلاصه مقاله:

Among the approaches commonly used to extend the sharp peak of the deposited dose in proton therapy, passive scattering is widely used and also is of concern because of the potential for generating secondary particles, especially neutrons, which can damage the non-target healthy tissues. The present simulation-based study investigates the effect of using the passive method for different primary proton energies on the dose delivered to the tissue compared with those of the pencil beam scanning method. The results show that the generation of secondary neutrons strongly depends on the material used in the beam design. Also, it was found that the passive method would lead to the physical neutron dose higher than that of the beam scanning method for various primary proton energies.

کلمات کلیدی:

proton therapy, passive method, Pencil beam Scanning (PBS), Secondary neutrons, Monte Carlo Simulations

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