Contribution ID: **407** Type: **Oral talk (15 min + 5 min questions)**

DEVELOPMENT OF SIMPLE TREATMENT PLANNING SYSTEM BASED ON TOPAS MC GEANT4 CODE FOR FAST NEUTRON IRRADIATION

Tuesday, 12 July 2022 15:20 (20 minutes)

At present, NIITFA is developing a new medical device for fast-neutron radiotherapy based on the 14.1 MeV neutron source NG-24[1].
The neutron source NG-24 was simulated in the Topas MC Geant4 environment. The simulation result was compared with the previously obtained result from the MCNP code[2].
A Python console program for running multiple Topas simulations has been developed. The developed program supports the following functions: setting several irradiation fields (SDS, gantry rotation angle), loading the patient's CT and HU-ED curve for Geant4 simulation, viewing the received dose distributions in transverse coronar and siggital projections

Keywords: neutron generator, fast-neutron radiotherapy, Monte Carlo method, Python3

1. В.М. Литяев, В.В. Фёдоров, А.Н.Соловьёв, С.Е. Ульяненко Устройство для формирования терапевтических нейтронных полей на базе генератора НГ–24. Медицинская физика 2016 №2 94-100, Москва 2016 2.Морозов В.Н., Моисеев А.Н., Холомов И.А., Зверев В.И. Исследование дозиметрических характеристик генератора нейтронов НГ-24 для терапевтического использования, Троицк, Россия 2020

The speaker is a student or young scientist

Yes

Section

1. Nuclear technology and methods in medicine, radioecology

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