Contribution ID: **171** Type: **Poster**

Geant4 application for electron beam quality in Intra-Operative Radiotherapy based on simulation of the linear accelerator Novac11

Intra-Operative radiotherapy (IORT) is a very effective technique that has begun to be used in our region. It has proven to be a good alternative as part of the breast conserving surgery. Technical success is based on the administration of high doses to the lesion in a single treatment session of radiotherapy, during the same surgical operation, with multiple clinical advantages that are not exempt of risk and must be evaluated deliberately. In this work, a specific application of Geant4 was created to allow IORT dose calculations to be assessed using Monte Carlo (MC) simulations with acceptable accuracy for dose prediction in complicated treatment plans and also to estimate radiation dispersed in the operating room. The application simulates the irradiation head of the linear accelerator Novac11 in different positions with different types of applicators. The Monte Carlo simulation was preliminarily validated by comparing the simulated dose distributions with the measurements by means of the ionization chamber in a water phantom.

Author: FRAGOSO NEGRÍN, José Alejandro (Instituto Superior de Tecnologías y Ciencias Aplicadas, Cuba.)

Co-authors: SOLA, Yeline (Instituto Nacional de Oncología y Radiobiología, Cuba.); LARA, Elier (Instituto Superior de Tecnologías y Ciencias Aplicadas, Cuba.); Mr ALFONSO LAGUARDIA, Rodolfo (Instituto Superior de Tecnologías y Ciencias Aplicadas, Cuba.); MORALES, Jorge L (Instituto Nacional de Oncología y Radiobiología, Cuba.)

Presenter: FRAGOSO NEGRÍN, José Alejandro (Instituto Superior de Tecnologías y Ciencias Aplicadas, Cuba.)

Session Classification: Poster Session - MP

Track Classification: Medical Physics