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Development through in silico experimentation of equations that predict the range of protons and carbon ions in brain and ocular tumors

In this work the study of the Deposited Dose Distributions in depth by Protons and Carbon Ions in different Phantoms, was made with Monte Carlo Method. Initially, a simulation of the interaction of the charged particles (Protons and Carbon Ions) with water was constructed with the Geant4 tool (Fig.1.). The Bragg peaks and Deposited Dose Maps at multiple energies within the therapeutic range were calculated to validation purposes (Fig.2.). Subsequently, the transport of Protons and Heavy Ions on Equivalent Human Tissue and high density materials as bone was studied. Also, the interaction of Protons and Carbon Ions with a human-headed phantom which includes the detailed geometry of the eyes was simulate(Fig.3.). The Bragg Peaks and Deposited Dose Maps were calculated to obtain the equations that predict the range of Protons and Carbon Ions in brain and ocular tumors.

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