AbstractID: 1574 Title: Monte Carlo Dosimetric Data of the ROPES 15 mm Eye Plaque as a Test of the Treatment Planning Systems

Radioactive eye plaque therapy is a widely used technique in the treatment of ocular tumors. The treatment planning systems (TPS) used for this therapy modality are based on the superposition of dose due to each seed, without considering the inter-source and applicator effect and assuming full scatter conditions.

In this work, dosimetric data of the ocular applicator ROPES of 15 mm loaded with 10 seeds of I-125 model 6711 are provided. This data have been obtained using the Monte Carlo (MC) code GEANT4. This work is a supplement of a previous one for the same applicator that was addressed to a new calculation algorithm for the TPS. The detailed geometry of the seed and the applicator have been taken into account in the MC simulation, including a representative eye-head model. As dose coincides with kerma for I-125 energies, the linear track-length kerma estimator has been used scoring kerma in a grid system composed of 60x60x60 cubic cells of 1 mm side. Dose distributions in the applicator central axis and in transversal planes to this axis are provided. These distributions can be used to control the initial reference status of the TPS. Finally, a dose table obtained assuming cylindrical symmetry is provided to support the certification of the calculations of a TPS in each clinical treatment.