

## Validation of Monte Carlo GATE for IORT

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**Background:** IORT is a radiotherapeutic technique that delivers high radiation dose in a single session to a surgically exposed tumor. The aim of this study is to validate the Monte Carlo “Gate” for IORT by using the dosimetric characterization of the accelerator Liac (SORDINA, Italy).

**Material and Methods:** The evaluated dosimetric properties of the 6, 8 and 10 MeV electron beams have been compared to Monte Carlo (MC) simulations performed for all applicators used during the accelerator annual calibration. Percentage depth doses (PDDs), transversal dose profiles (TDPs) and output factors (OFs) were measured in a commercial water phantom using a PTW microDiamond detector.

**Preliminary results:** Preliminary results show a good agreement among experimental data and MC simulation both for PDD curves, OF and TDPs. In figure 1(left) is shown the measured PDD curve for 10 MeV electron beam and 10 cm applicator compared with MC-PDD, while in figure 1(right) the 10 MeV calculated output factor from experimental data is compared with the MC-OF.

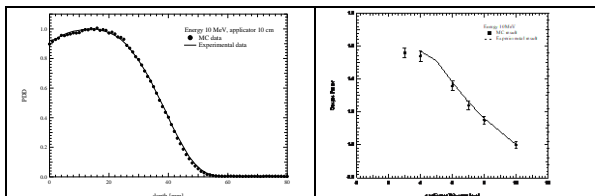


Figure 1 Comparison of measured PDD vs. MC-PDD for 10 MeV and 10 cm applicator (left), calculated OF vs. MC-OF for 10 MeV (right).