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Medical irradiation studies at IBPT accelerators

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Radiation therapy is an important oncological treatment method in which the tumor is irradiated with ionizing radiation. In recent years, the study of the beneficial effects of short intense radiation pulses (FLASH effect) or spatially fractionated radiation (MicroBeam/MiniBeam) have become an important research field. Systematic studies of this type often require non-medical accelerators that are capable of generating the desired short intense pulses and, in general, possess a large and flexible parameter space for investigating a wide variety of irradiation methods.

At KIT, the accelerators of IBPT (Institute for Beam Physics and Technology) give access to complementary high-energy and time-resolved radiation sources. While the linear electron accelerator FLUTE (Ferninfrarot Linac- und Testexperiment) can generate ultrashort electron bunches, the electron storage ring KARA (Karlsruhe Research Accelerator) provides a source of pulsed X-rays.

In this contribution, first dose measurements and simulations for FLUTE and KARA using the Monte Carlo simulation program FLUKA are presented.

Footnotes

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