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Monte Carlo simulations of microbeam radiation therapy with carbon ions for an interleaved irradiation geometry

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Microbeam Radiation Therapy (MRT) uses an array of parallel microbeams in order to spare normal tissue and preferentially damage tumors. In this study, dose-distribution calculations for interleaved microbeam radiation therapy were performed with carbon ions, using the Monte Carlo code MCNPX. The dose was calculated in a rabbit head model to study brain-cancer treatment using ion microbeams. Depth-dose profile, beam broadening and peak-to-valley dose ratios were calculated for interleaved carbon microbeams.

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