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History of PT

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History of PARTICLE THERAPY

75 years after the initial proposition of R.R.Wilson to use protons and even energetic carbon ions for tumour treatment [1], ion beam therapy is still considered an emerging form of advanced external beam radiation therapy, which can offer considerable advantages in comparison to the widely used X-rays. In particular, the physical properties of swift ions in matter may enable a highly conformal deposition of dose (i.e., energy per unit mass) in a well localized maximum, so called Bragg peak, while considerably reducing the burden to surrounding healthy tissue. Moreover, especially for ions heavier than protons, the enhanced ionization density toward the end of the ion paths can cause more efficient tumour cell killing in comparison to conventionally used sparsely ionizing radiation.

This talk will give an historical perspective on the developments of proton and light ion therapy, from the pioneering experience at research institutions able to accelerate heavy charge particles up to suitable energies for the treatment of deep-seated tumors, through the first hospital based facilities established in the 1990s, up to the still ongoing exponential growth of state-of-the-art dedicated facilities.

1. R.R. Wilson, Radiology 47 (1946) 48

Summary

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