

# **Seminar on Radiation Protection for Particle Therapy Facilities**

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Radiation therapy with protons or heavy charged particles is a comparatively new method for tumour treatment. The production of particle therapy beams as well as the beam delivery system is quite different to conventional electron accelerator therapy facilities. The presentation provides an introductory motivation for particle therapy. The particle beam production with the two main accelerator types, the beam forming systems and their specific radiation protection issues are explained. Furthermore, the main radiation production processes as well as energy spectra of released neutron radiation will be presented. Shielding design methods are described. Examples of various particle therapy centers and their radiation protection planning are presented. Finally, an outline of the approval procedure by the responsible authority and a typical list of safety and radiation protection related items is given.