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Proton Radiotherapy
Exam topics

1. Discuss three major advantages (physics, biology, technology) of ions/protons with respect to photons?
   What is the cross-firing technique?
2. Explain the treatment planning chain for protons?
   What are the differences with respect to photon radiotherapy treatment planning?
3. Explain rationale of proton radiobiology?
   What are the advantages and disadvantages of applying RBE=1.1 for protons in the clinic?
   OR
4. Explain how does the proton beam therapy control system works.
   What do the monitors of scanning therapy control system (TCP; feedback system) measure?
5. Explain physical and technological principles of ion beam therapy range monitoring methods based on PET-gamma, prompt-gamma, charged secondary detection.
   OR
6. Explain motion mitigation techniques and their role with respect to treatment plan adaptation and robust optimization.
   What is the interplay effect?