Silicon Detectors for Quality Assurance in Proton and Heavy Ion Therapies

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Proton Therapy (PT) and Heavy Ion Therapy (HIT) have advantage for treatment of many deeply seated cancers due to superior dose distribution and high relative Radiobiological Effectiveness (RBE) in HIT in comparison with conventional X-ray therapy. While PT and HIT technology is growing for the last decade due to advancement in accelerator science it demand new comprehensive systems for quality assurance (QA) and cancer imaging for maximal utilizing the benefit of these radiation oncology modalities.

This talk wills overview new recent technologies for QA and improvement of beam delivery in PT and HIT based on silicon radiation detectors. It will include:

New silicon detectors with high spatial resolution for absorbed dosimetry and RBE measurements;
Advancement in development of proton CT and silicon detectors based instrumentation for that;
PET based real time dose placement verification.

References.

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