

Characterization of pixelated silicon detectors for the measurement of small radiation fields in proton therapy

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The advanced imaging and accelerator techniques in proton therapy allow conformal high dose irradiation of tumors with precision using pencil beam scanning or beam shaping apertures. These irradiation methods increasingly include small radiation fields with large dose gradients, which require the development of small field dosimetry systems with high spatial resolution for quality assurance.

Based on their good spatial resolution and high rate compatibility, pixelated silicon detectors could meet the new requirements.

To assess their applicability in proton therapy ATLAS pixelated silicon detectors are used to measure lateral beam profiles of different irradiation modes, as well as the dose gradient at the field edges with high resolution. Analysis strategies to determine the residual proton energy and the possibility to measure the proton flux are under study.

The talk will present first results from measurements at the West German Proton Therapy Centre in Essen, Germany

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Yes, this would have been presented at TIPP2020.

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