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Assessment of Beam Profile Monitors for medical and research beams in the MedAustron Facility

MedAustron is an Cancer treatment and research facility specialized on hadron therapy. The heart of the facility is a synchrotron providing proton and carbon beams with energies of 62-252 MeV and 120-400 MeV/u respectively. Extracted beams are distributed via a xxx m long HEBT to 5 different beam lines in 4 irradiation rooms intensities ranging from 10^6 - 10^{10} particles per second. New requirements for lower flux rates (10^2 parts/s), improved time resolved measurements and increased precision motivate an upgrade of detector technology. Currently integrated scintillating fibre detectors are characterized and compared with different scintillating screens and silicon based technologies. Beam measurements with proton and carbon beams of different intensity ranges as well as an outlook of potential developments are presented.

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