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Tue-Mo-Po2.08-06 [59]: Design and Test of an Octupole Scanning Magnet for Proton Therapy

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Proton beams have several features that make them very effective in radiation therapy applications. These include high dose localization as well as high biological effect around the Bragg peak. Moreover, magnetic scanning methods allow one to spread an ion beam to an exact image of a complex tumor shape. The ion scanning system usually consists of two magnets, each scanning horizontal and vertical directions independently. This paper discusses the design for a novel octupole magnet design that provides beam deflection over a dipole field which can be set up at any azimuthal angle in the volume of the magnet bore. A test of the static and dynamic performance of the octupole scanning magnet has been performed using Hall probes and coils to measure the field inside the magnet and the results are presented in this paper.

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