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A Compact 2D Carbon Beam Scanner with Interleaved Saddle Coils

Thursday 14 August 2025 16:00 (2 hours)

Scanning magnets are used in proton and ion beam therapy to produce a radiation dose conforming to the cancerous tumor. In most existing beam delivery systems, two separate magnets are used to scan the beam in the transverse planes. To enable more compact systems and gantries, a combined function 2D scanner magnet with a short working distance is highly desirable. Earlier designs suffer from field non-uniformity in at least one plane. A compact 2D scanner magnet has been designed to produce high-field uniformity in both planes. The scanner was designed for carbon ions and could be easily scaled down for protons and other light ions. The design is based on saddle coils where the coils of the two magnets are interleaved to balance both field properties and power losses when scanning in both planes. The simulated field performance shows ˜ 0.1% field uniformity in both planes within the useful aperture of the magnet . This represents a significant improvement over the prior art of the elephant-ear scanner design. Different design options and possible implementations will be presented.

Please consider my poster for contributed oral presentation

Yes

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

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Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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