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Methodology for identifying the centre of a solenoid magnet based on the beam dynamics

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The method of varying the strength of the corrector magnet installed upstream and minimising the position variation in diagnostics located downstream is widely used for identifying the centre of the magnetic field produced by a quadrupole magnet. However, in the case of a solenoid magnet, unlike a quadrupole magnet, it is not suitable to apply the variable separation method in the x-y direction since both field components are correlated, and the focusing of the magnetic field occurs in the azimuthal direction. In this presentation, we propose an analytical method for finding the centre of a solenoid magnet and present results validated by simulations.

Footnotes

Funding Agency

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Yes

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