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A higher momemtum aperture lattice proposed for the sPHENIX background problem

Tuesday 12 August 2025 16:00 (2 hours)

During the 2024 Au+Au 100 GeV physics run, the sPHENIX MVTX detector experienced background issues originating from the Yellow beam, leading to frequent auto-recoveries during streaming mode operation. One hypothesis attributes the background to the loss of off-momentum particles. An evaluation of the momentum apertures in both RHIC rings revealed that the Yellow ring had a worse momentum acceptance compared to the Blue ring. To address this, a new lattice design with a reduced W-function was proposed. This report presents the momentum aperture comparison between the two rings, the proposed new lattice design considering additional constraints, and the resulting momentum and dynamic apertures.

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

Funding Agency

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Yes

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