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Latest beam optics simulations of achromatic section of Delhi Light Source

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The Delhi Light Source is an upcoming user facility for coherent THz radiation and electron beam. Electron beam of energy upto 8 MeV generated from a RF photocathode gun will be used for coherent THz generation from a planer undulator. For electron experiments the beam will be passed unperturbed through the undulator and transported into experimental line through an achromatic section. The setting of the proper beam focussing before the achromat plays an important role in successful operation of the achromat and beam focus in the experimental line. In the existing design, the solenoid post RF gun and a quadrupole singlet are the only focussing elements upto the achromatic section. Although zero momentum dispersion is achievable through the achromat with just the solenoid, the control over beam focus is limited. To overcome this, the extended quadrupole correction (EQC) coils along the undulator is considered as a suitable option for use to achieve beam size control in addition to zero momentum dispersion. Beam optics simulations has been performed to optimize use of the EQC coils in obtaining the said objective and the results obtained are discussed in this paper.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

Funding Agency

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