



Contribution ID: 995 Contribution code: THPR40

Type: **Poster Presentation**

The design of the proton-EDM injection line, from BNL AGS booster

Thursday, 23 May 2024 16:00 (2 hours)

The proton Electric Dipole Moment (pEDM) storage ring to measure the electric dipole moment of the proton [1] is proposed to be built in the tunnel of the Alternating Gradient Synchrotron (AGS) at Brookhaven National Laboratory (BNL) by storage ring EDM (srEDM) Collaboration. We proposed that the AGS Booster to pEDM ring transfer and injection line (BtP) would use the partial portions of the existing BtA (AGS Booster to AGS) transfer line optics. In this practice, both of BtP Clockwise orientation (CW) and Counter-clockwise orientation (CCW) injection line are designed and matched in the hypothesis of a single turn injection scheme. The injecting beam-properties are matched to pEDM ring Twiss functions.

Footnotes

[1] Zhanibek Omarov et al. Phys. Rev. D 105, 032001 (2022)

Funding Agency

Work supported by Brookhaven Science Associates, LLC under Contract No. DE-SC0012704 with the U.S. Department of Energy.

Paper preparation format

LaTeX

Region represented

North America

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Session Classification: Thursday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.T12 Beam Injection/Extraction and Transport