

Optimization of Booster to Storage Ring Transport Using Nonlinear Kicker Magnet: A Simulation Study

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This study investigates beam dynamics simulation and optimization of the booster ring to storage ring transport line using a nonlinear kicker magnet (NKM). Employing the Accelerator Toolbox (AT), we developed a custom NKM element module to enhance the simulation of beam dynamics. Our approach involves optimizing lattice functions within the booster ring to improve the transport efficiency to the storage ring. The study focuses on computing injection efficiencies with the NKM to achieve optimal beam transfer and minimize losses. The integration of the custom module with AT enables precise control and adjustment of nonlinear magnetic effects, contributing to improved performance and stability of the injection process. The results demonstrate significant advancements in optimizing the lattice configuration and enhancing overall injection efficiency, providing valuable insights for future accelerator design and operation.

Paper submission Plan

No

Best Presentation

No

Contribution track

ICABU WG2. Beam Physics, Diagnostics & Novel Techniques

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