

Low Emittance Optics Design for CEPC Booster

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The CEPC booster has been designed to provide electron and positron beams at different energies for the collider. The latest booster design aligns with the TDR's higher luminosity objectives for four energy modes. The booster's optics have transitioned from FODO in the CDR to TME structure, resulting in a significant reduction in emittance to match the lower emittance of the collider in the TDR. Extensive efforts have been invested to address the challenge of error sensitivity for the booster, ensuring that the dynamic aperture with errors meets the requirements across all energy modes. Additionally, a combined magnets scheme (B+S) has been proposed to minimize the magnet construction costs and reduce the operation costs through lower power consumption. This poster will show the design status of the CEPC booster in the TDR, encompassing parameters, optics, dynamic aperture, ramping scheme, and injection scheme.

Alternate track

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Yes

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