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Beam-based girder alignment to reduce corrector strengths: conceptual simulations for PETRA IV

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DESY is planning to upgrade PETRA III to a 4th generation light source. The magnetic lattice components are pre-installed and aligned on long girders before being installed in the tunnel. These long girders and the misalignment of the magnets pose a challenge for the PETRA IV lattice, including the storage of the beam in the ring. Commissioning simulations have been performed which showed that relatively high corrector strengths are required for the orbit correction system. A simulation study was performed to demonstrate the possibility of beam-based girder alignment correction to relax the corrector strengths during machine operation. The simulation results are presented and then discussed for later implementation.

Footnotes

Funding Agency

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LaTeX

Region represented

Europe

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