

Alignment and Tolerances

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The FCC-hh (Future Hadron-Hadron Circular Collider) is one of the three options considered for the next generation accelerator in high-energy physics as recommended by the European Strategy Group, and the natural evolution of existing LHC. Preliminary studies have started to estimate the design parameters of this option.

One of these studies is the calculation of the residual orbit in the arcs of the collider. This is very important for the evaluation of the alignment tolerances of the quadrupoles used in the arcs, the correctors dimensioning and the electron screening. Moreover it has an impact on the dynamic aperture of the ring and the field tolerances of the arcs multipoles. To perform the simulations, the beam transport code MADX has been used. Systematic studies of the residual orbit and of the correctors strength dependence on the magnets misalignment are presented, and different correction schemes are compared.

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