

Arc optics, global Q' correction and emittance variation

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Layout and lattice of FCC-ee are being optimised for precision studies and rare decay event observations in the range of 90 to 350 GeV center of mass energy. To reach luminosities in the order of $10^{35} \text{ cm}^{-2} \text{ s}^{-1}$ extremely small vertical beta functions of 1 - 2 mm are required at the two interaction points. The strong focusing by the final doublet quadrupoles drives the absolute value of the chromaticity to more than 2000 units, which is far beyond the values that have been achieved in previous storage rings. As a consequence a pure linear chromaticity compensation scheme will not be sufficient to obtain the required +/- 2 % energy acceptance. A state of the art multi-family sextupole scheme in the arcs will have to be combined with a local chromaticity correction scheme.

This talk will present last year's results of systematic studies of the sextupole scheme in the arcs and the status of the arc lattice, optimised for highest momentum acceptance, that will be combined to the local sextupole scheme in order to gain highest chromaticity performance.

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