

# Exploring the triplet parameter space to optimise the final focus of the FCC

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One of the main challenges when designing final focus systems of particle accelerators is maximising the beam stay clear in the strong quadrupole magnets of the inner triplet. Moreover it is desirable to keep the quadrupoles in the inner triplet as short as possible for space and costs reasons but also to reduce chromaticity and simplify corrections schemes. An algorithm that explores the triplet parameter space to optimise both these aspects was written. It uses thin lenses as a first approximation and MADX for more precise calculations. In cooperation with radiation studies, this algorithm was then applied to design an alternative triplet for the final focus of the Future Circular Collider.

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