

Muon iron-free magnetic field of the 4th Concept

We describe the design of the co-axial dual-solenoids of the 4th concept and the rationale for a superior (better than LEP) muon system. We show the ANSYS analysis, muon resolutions, and expected physics performance. The dual-solenoids do not cover the forward angular regions, so we explore the possibility of a wall of coils to contain the magnetic field to a compact cylindrical volume and at the same time provide a radial field for the momentum measurement bending of forward muons.

Summary

The configuration of dual co-axial solenoids coupled with a wall of circular coils at the ends of the outer solenoid provides nearly full coverage for muon momentum measurements.

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