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Muon identification and pion rejection in the 4th Concept

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We describe a completely new way to reconstruct and identify muons with high efficiency and very high pion rejection in the 4th Concept detector. The air-volume dual-solenoid magnetic field allows the reconstruction and precision momentum measurement down to a few GeV (just the energy loss in the 10-interaction-length calorimeter and the coil) and the dual-readout calorimeter provides a new, unique and powerful separation of muons from pions. We use test beam data for the calorimeter and calculations for the magnetic fields.

Summary

New methods for muon reconstruction and identification in a colliding beam experiment are described.

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