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Simulation of the MoEDAL experiment

The MoEDAL experiment (Monopole and Exotics Detector at the LHC) is designed to directly search for magnetic monopoles and other highly ionising stable or metastable particles at the LHC. The MoEDAL detector comprises an array of plastic Nuclear Track Detectors deployed around the P8 intersection region of the LHCb detector, combined with trapping volumes for capturing charged highly ionising particles and TimePix pixel devices for monitoring. The passive detector elements do not require a trigger, electronic readout or computerised data acquisition, therefore the software components mainly concern the simulation rather than digitisation or reconstruction. In this talk we present the current status of the MoEDAL simulation software. Specifically we focus on the material description –within the Geant4 framework– of the detector geometry including its cavern surroundings. We also discuss Geant4 simulation studies on the propagation of monopoles and highly-charged particles through the MoEDAL material.

Summary

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