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Noise and shower shapes in the LDMX prototype hadronic calorimeter

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The Light Dark Matter eXperiment (LDMX) is a proposed fixed target missing energy and momentum experiment with the purpose of searching for light dark matter in the ranges of MeV to low GeV masses. The experiment utilises a steel-scintillator hadronic calorimeter (HCal) for event veto, a prototype of which was tested at CERN in the spring of 2022. The data taken during the 2022 test run has undergone extensive analysis with the goal to quantitatively verify the HCal's performance and search for potential issues in the data pipeline. Results of noise measurements, as well as an analysis of pulse shapes and minimally ionizing particle (MIP) detection efficiency are presented.

Summary

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