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(G*) Discriminating Hadronic Split Offs Using the KLM at Belle-II

Wednesday 21 June 2023 11:00 (15 minutes)

Belle-II is a B-factory experiment on the luminosity frontier. The high luminosity leads to high backgrounds, specifically in the electro-magnetic calorimeter (ECL). The ECL is a subdetector made from CsI scintillators, mostly serving to detect photons and measure their energy. One background comes in the form of hadronic split offs which mimic low energy photons. These occur when a hadron interacts with a nucleus in the calorimeter, ejecting other hadronic matter which can cause further activity in other sections of the ECL. Attempts to discriminate these hadronic split offs using only ECL data have been limited in success. However, the K-Long and Muon Detector (KLM), an outer subdetector used to identify and detect muons and long-lived kaons, made from sandwiched iron plates and resistive plate chambers or scintillator strips, may have the ability to detect some hadronic matter responsible for hadronic split offs. This could allow the background ECL activity to be flagged and discriminated against. This talk summarizes a study done to check the feasibility of using the KLM for such a purpose.

Keyword-1

calorimeter

Keyword-2

hadronic split off

Keyword-3

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