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Muon Identification: Efficiency and Purity vs. Interaction Lengths

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We report the findings of a study on the efficiency and purity of muon identification for the proposed SiD detector geometry. The study is based on simulated b-pair events that include a muon in the decay chain. The aim of the study was to assess the use of the highly segmented proposed hadron calorimeter in the b identification process. The study shows that the efficiency and purity of the muons from b-decay improves until the muon penetration depth exceeds about eight interaction lengths of material

Primary author: Dr MILSTENE, Caroline (Fermilab)

Co-authors: Dr PARA, Adam (Fermilab); Dr FISK, Eugene (Femilab)

Presenter: Dr FISK, Eugene (Femilab)

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