



Contribution ID: 340

Type: Oral presentation using Zoom

New ideas for K/pi discrimination at the ILC

Wednesday, 27 October 2021 20:12 (24 minutes)

One of the most interesting yet-to-be answered questions in Particle Physics is the nature of the Higgs Yukawa couplings and their universality. Key information in our understanding of this question arises from studying the coupling of the Higgs boson to second generation quarks. Some puzzles in the flavor sector and potential additional sources of CP violation could also have their origins in an extended Higgs sector.

Rare Higgs decay modes to charm or strange quarks are very challenging or nearly impossible to detect with the current experiments at the Large Hadron Collider, where the large multi-jet backgrounds inhibits the study of light quark couplings with inclusive $h \rightarrow \text{X}$ decays. Future e^+e^- machines are thus the perfect avenue to pursue this research.

Studies were initiated in the context of Snowmass2021 (https://indico.slac.stanford.edu/event/6617/contributions/1442/attachments/682/1442/EF1_EF2-IF3_IF0_Valentina_Maria_Martina_Cairo-047.pdf) with particular emphasis on the Higgs coupling to strange quarks and the related flavour tagging challenges, which gave light to an interesting investigation of detector layouts. In this talk, we present a first examination of suitable technologies, such as a modern ring imaging Cherenkov system, for ILC detectors to provide K/pi discrimination in the momentum range needed for tagging strange-jets, with efficient rejection of light-quark jets.

1st preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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