PLHC2011 - Physics at LHC 2011



Contribution ID: 85

Type: not specified

CP-violation studies with charm decays at LHCb (15' + 5')

Thursday 9 June 2011 17:40 (20 minutes)

LHCb has reconstructed large samples of open charm events using 37 pb–1 of LHCb data collected in 2010. CP violation in charm is an excellent probe for New Physics due to the smallness of the Standard Model predictions. The analyses of D0 decays into two-body final states are presented, including time-dependent measurements of CP violation and mixing via the parameters AF and yCP and the measurement of the time-integrated CP asymmetry difference $\triangle ACP = ACP(KK)-ACP(\pi\pi)$. AF and $\triangle ACP$ provide clean access to CP violation in box and penguin diagrams, respectively. Furthermore a model-independent search of CP violation in the Dalitz plot of D+ \rightarrow K–K+ π –is presented, using Ds+ \rightarrow K–K+ π –and D+ \rightarrow K– π + π –as control channels. Prospects are given for improving the sensitivity of these measurements in the 2011–2012 run.

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Session Classification: 4D Parallel - B, charm and onia