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## **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<sup>-1</sup> 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 D<sup>0</sup> decays into two-body final states are presented, including time-dependent measurements of CP violation and mixing via the parameters  $A\Gamma$  and  $\gamma_{CP}$  and the measurement of the time-integrated CP asymmetry difference  $\Delta A_{CP} = A_{CP}(KK) - A_{CP}(\pi\pi)$ .  $A\Gamma$  and  $\Delta A_{CP}$  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  $D^+ \rightarrow K^-K^+\pi^-$  is presented, using  $D_s^+ \rightarrow K^-K^+\pi^-$  and  $D^+ \rightarrow K^-\pi^+\pi^-$  as control channels. Prospects are given for improving the sensitivity of these measurements in the 2011–2012 run.

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