## 51st Rencontres de Moriond EW 2016



ID de Contribution: 114

Type: Ordinary

## **Charm mixing and CP violation**

dimanche 13 mars 2016 10:40 (15 minutes)

LHCb collected the world's largest sample of open charm decays during Run 1 of the Large Hadron Collider. This has permitted many precision measurements of charm mixing and CP violation parameters, the most precise of which being  $\Delta A_{CP}$ , a measurement of the relative strength of direct, time-integrated CP asymmetries between two singly-Cabibbo suppressed  $D^0$  decays. This measurement has recently been updated using promptly-produced  $D^0$  mesons with the full Run 1 dataset, and has a precision below the permille level. In addition, LHCb has recently made the first observation of  $D^0$  mixing in a multibody  $D^0$  decay, also measuring associated coherence parameters which can be used as input to measurements of the CKM angle  $\gamma$ . LHCb has also measured the mixing parameters x and y with a model-independent analysis of  $D^0 \rightarrow K_S^0 \pi^+ \pi^-$  decays, and the size of direct CP violation in  $D^0 \rightarrow K_S^0 K_S^0$  decays. These four analyses will be presented, along with a brief overview of the prospects for Run 2.

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Classification de thématique: Experiment