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Delta ACP from Semileptonic Charmed Baryon Decays at LHCb

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An analysis to measure delta ACP in Lambda_c baryons originating from semileptonic Lambda_b decays using 2011 LHCb data is presented.

The CP violation measurement delta ACP in this system is defined as

$$\text{delta ACP} = \text{ACP}(\text{Lambda}_c \rightarrow \text{pK}^+\text{K}^-) - \text{ACP}(\text{Lambda}_c \rightarrow \text{ppi}^+\text{pi}^-).$$

All production and detection asymmetries cancel to first order, the remaining contribution being direct CP violation.

The interest in charm sector CP violation originates from the recent LHCb results in D0 meson decays, which showed a 3.5 sigma deviation from the standard model prediction.

The branching fractions of the pK+K- and ppi+pi- modes, relative to the pK-pi+ mode, are measured as a cross check of the selection.

A multivariate analysis, along with tight particle identification requirements, is used to select the signal candidates.

The salient features of the analysis are presented, along with a discussion on the systematic errors involved.

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