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Search for CP violation in $B \rightarrow DK$, $D \rightarrow hh\pi^0$ decays at LHCb

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Charged B decays of the form $B^\pm \rightarrow DK^\pm$ (where D represents either a D^0 or a \bar{D}^0) are powerful tools in the measurement of the CP -violating CKM angle γ . Channels where the D decays to a final state involving a π^0 , such as $D \rightarrow \pi^\pm K^\mp \pi^0$, $D \rightarrow \pi^\pm \pi^\mp \pi^0$ and $D \rightarrow K^\pm K^\mp \pi^0$ are promising modes for these studies, but present challenges in the fierce environment of the LHC. In this talk I shall demonstrate that the excellent performance of the LHCb detector allows for high purity samples of these decay modes to be isolated, and consequently, their use in an ongoing CP -violation analysis using 3.0 fb^{-1} of data.

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