

Observation of several sources of CP violation in $B^+ \rightarrow \pi^+ \pi^+ \pi^-$ decays

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Very large CP asymmetries in decays of B mesons to final states containing three charged particles have been observed and attracted much interest. We present new results from a Dalitz plot analysis of $B \rightarrow 3\pi$ using a data sample corresponding to an integrated luminosity of 3 fb^{-1} of pp collisions recorded by the LHCb detector. Significant CP violation from different sources (S-wave, D-wave, S-P wave interference etc.) are established and may shed new light on understanding the underlying dynamics for CP violation in hadronic B decays.

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