

The UT angle γ is the only CP -violating parameter that can be measured using only three-level decays. It is therefore an essential benchmark. The most powerful method for measuring γ is based on the $B \rightarrow DK$ decay family, where D is a superposition of the two flavour-eigenstates D^0 (D^{*0}) and \bar{D}^0 (\bar{D}^{*0}). When the D decays to a final state that is common to both D^0 and \bar{D}^0 , the angle γ is determined by the interference between $b \rightarrow c\bar{u}s$ and $b \rightarrow u\bar{c}s$ transitions. Since the hadronic parameters can be measured alongside γ , the theoretical uncertainty is negligible. Three main variations of this method differ by the type of the D decay. These are the GLW¹, exploiting D decays to CP -eigenstates; the ADS², using doubly Cabibbo-suppressed decays; the GGSZ³, which exploits the three-body D decays to self-conjugate modes, such as $K_S^0 h^+ h^-$ ($h = K, \pi$). The best sensitivity is achieved by combining the various methods and decays. The latest combination of γ measurements by the LHCb collaboration⁴ yields $\gamma = (74.0_{-5.8}^{+5.0})^\circ$. This result includes three recent LHCb analyses⁵. The result, based on data from Run 1 (3 fb^{-1}) and Run 2 (2 fb^{-1}), is in good agreement with the world averages, $\gamma = (71.1_{-5.3}^{+4.6})^\circ$ (HFLAV) and $(73.5_{-5.1}^{+4.2})^\circ$ (CKMfitter). With the full LHCb Run 2 data, the uncertainty on γ is expected to be between $3 - 4^\circ$.

¹PLB **253** 483, PLB **265** 172.

²PRL **78** 3257

³PRD **68** 054018

⁴LHCb-CONF-2018-002.

⁵JHEP **08** (2018) 176, JHEP **11** (2017) 156 and PLB **777** (2018) 16.