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## Measurement of CP violation parameters in $B^0 \rightarrow DK^{*0}$ decays

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The CP-violating angle  $\gamma$  is the only angle of the unitarity triangle which can be measured via tree-level processes.  $\gamma$  can also be measured indirectly using loop-level processes, which are susceptible to the effects of new physics. An observed discrepancy between the direct and indirect measurements of  $\gamma$  would be evidence for new physics. Reducing the experimental uncertainty on the direct  $\gamma$  measurement is therefore of great interest.

To measure  $\gamma$ , we exploit interference between decays with  $b \rightarrow u$  and  $b \rightarrow c$  quark transitions. One such decay is  $B^0 \rightarrow DK^{*0}$ , where  $D$  is a superposition of  $D^0$  and anti- $D^0$  mesons. An analysis of this mode is presented with  $D$  reconstructed in the two-body final states  $K^-\pi^+$ ,  $K^+\pi^-$ ,  $K^+K^-$  and  $\pi^+\pi^-$ , and the four-body final states  $K^-\pi^+\pi^-\pi^+$ ,  $K^+\pi^-\pi^+\pi^-$  and  $\pi^+\pi^-\pi^+\pi^-$ . The data sample used corresponds to 5 fb<sup>-1</sup> of proton-proton collisions collected by the LHCb experiment. Several observables are measured, including CP asymmetries. These provide constraints on  $\gamma$  as well the amplitude ratio  $r_B$  and strong phase difference  $\delta_B$  between the interfering decays.

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