

# Supplementary material for LHCb-PAPER-2022-017

## Two-dimensional confidence intervals

Confidence intervals are determined using the profile likelihood method. The difference in the  $\chi^2$  with respect to that of the best fit is evaluated at each point in the parameter space of  $\gamma$  and the  $B$ -hadronic parameters. The  $\Delta\chi^2$  is then interpreted as a  $p$ -value under the assumption that it follows a  $\chi^2$  distribution with one degree-of-freedom. The confidence intervals, where  $\text{CL.} \equiv 1 - p$ , are shown in Fig. ??, where single well-behaved minima can be observed in each of the two-dimensional projections.

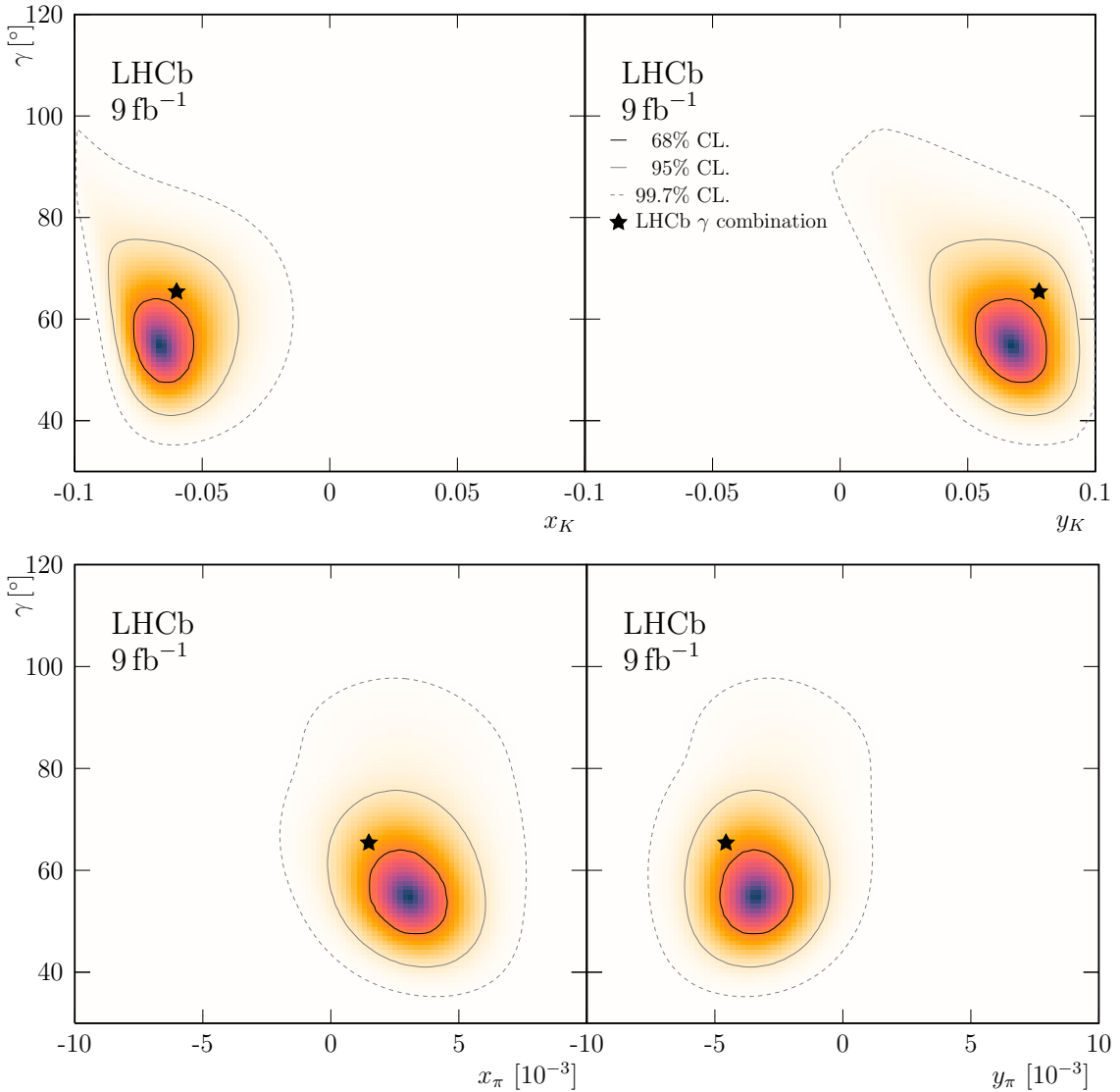


Figure 1: Confidence intervals for  $\gamma$  versus the  $B$ -hadronic parameters in the Cartesian parameterisation.