

Supplementary material for LHCb-PAPER-2018-003

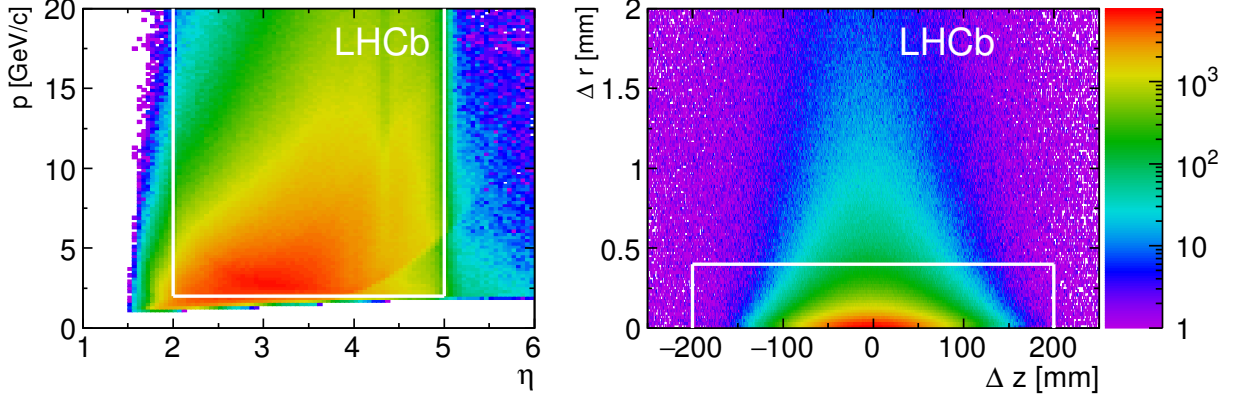


Figure 1: (left) Momentum versus pseudorapidity of reconstructed tracks and (right) transverse and longitudinal distance of the estimated point of origin from the average PV position. The colour code indicates the track density in units or tracks per phase space bin. On the left-hand plot the white rectangle shows the definition of the fiducial region, while on the right-hand plot it illustrates the selection of prompt tracks.

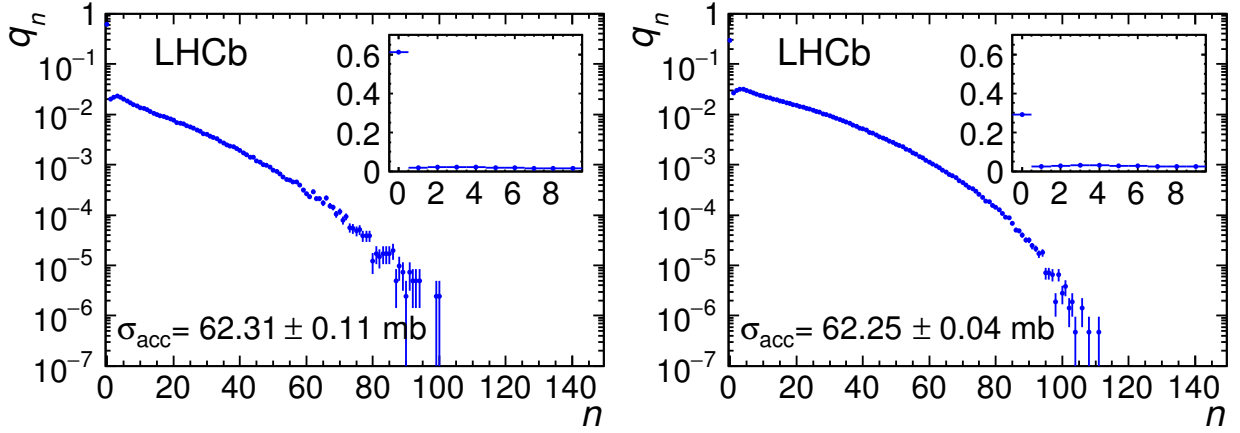


Figure 2: Probabilities q_n to observe n prompt charged tracks from leading bunch crossings in (left) a low- and (right) a high-pileup run. The insets show a zoom to the low-multiplicity regions. Also indicated are the values for the fiducial cross-sections with their statistical uncertainty. The run numbers are (left) 157586 and (right) 157704, the pileup values are $\mu = 0.56$ and $\mu = 1.26$, respectively.

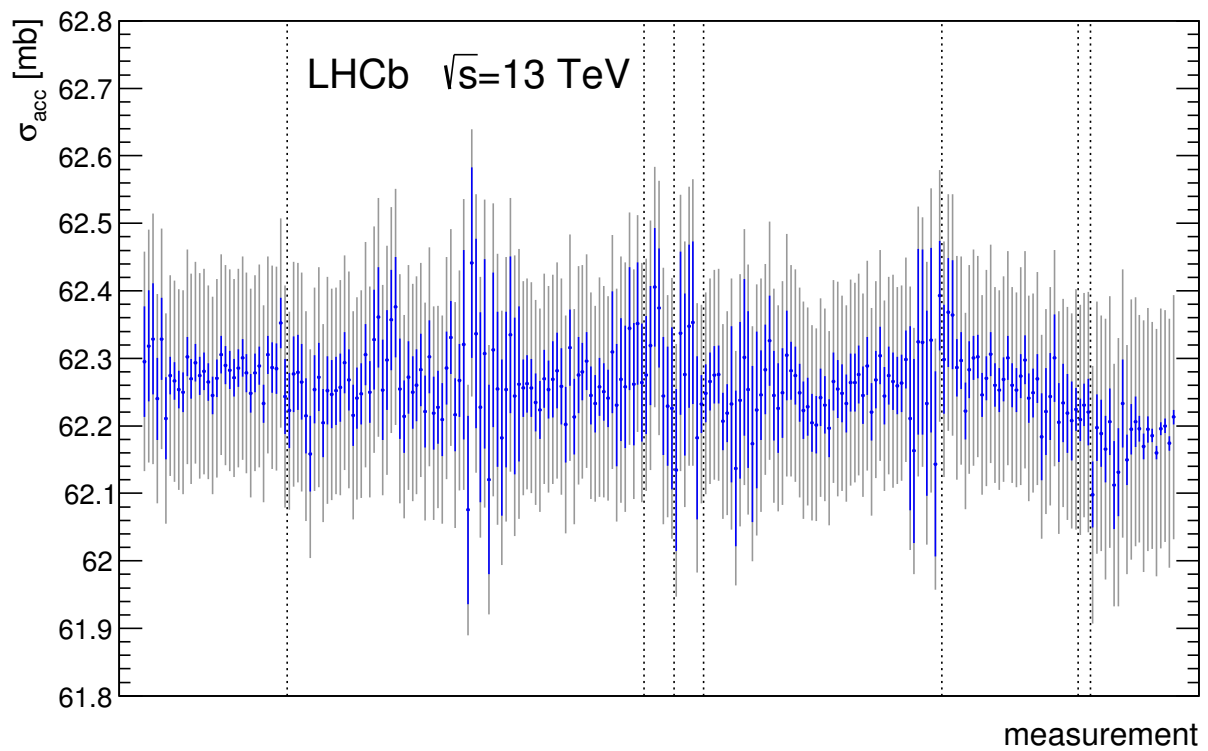


Figure 3: Summary of all 243 independent cross-section measurements in chronological order. The inner (blue) error bars show the statistical uncertainties of the individual measurements, while the outer (light grey) ones represent the total uncertainties. The dotted vertical lines show the fill boundaries.

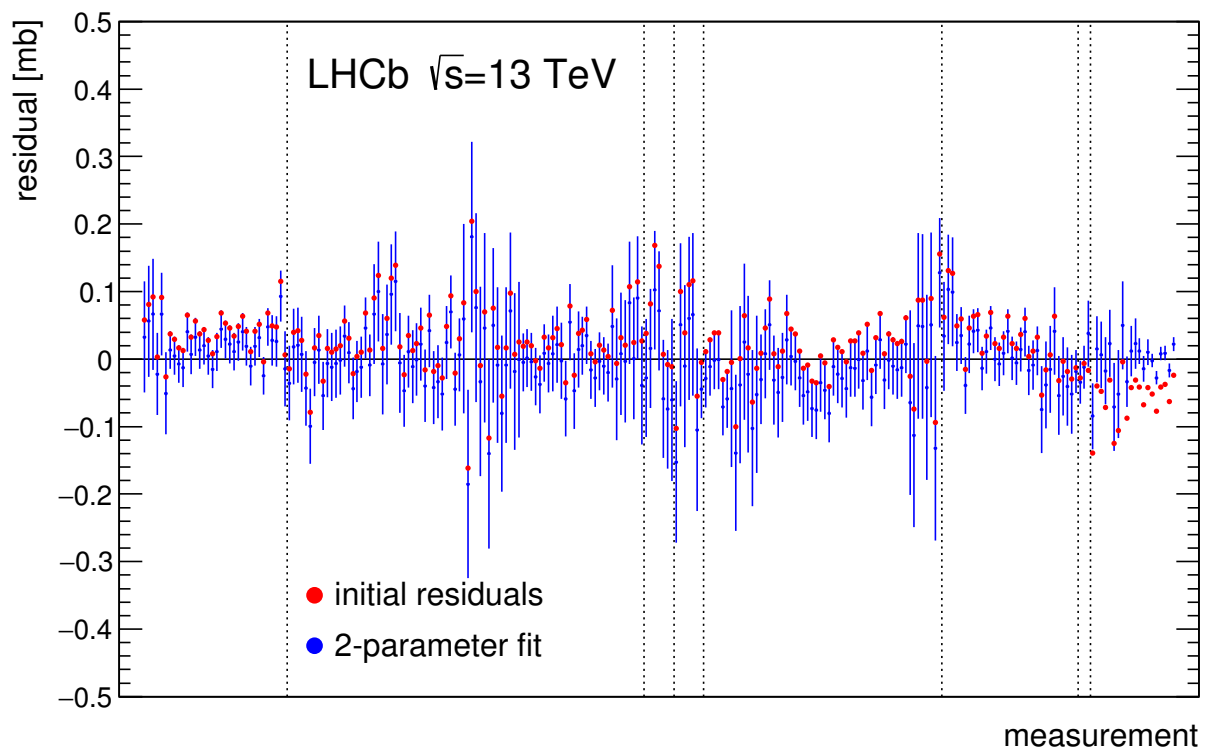


Figure 4: Differences between the individual measurements and the overall average (red points), and residuals (blue) after fitting the differences by $a_0 y_{PV} + a_1 \sigma(y_{PV})$, where y_{PV} and $\sigma(y_{PV})$ are mean and standard deviation of the vertical position of the luminous region in the run. The fit determines the global parameters a_0 and a_1 . The dotted vertical lines show the fill boundaries.

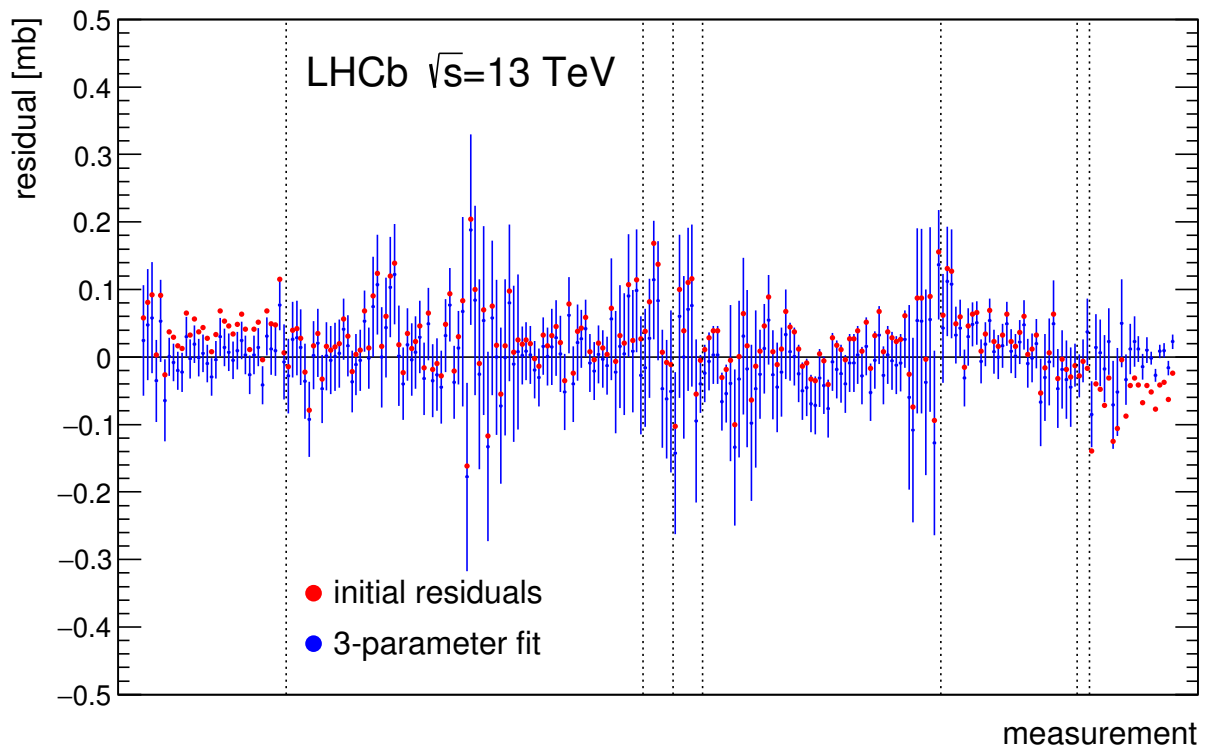


Figure 5: Differences between the individual measurements and the overall average (red points), and residuals (blue) after fitting the differences by $a_0 y_{PV} + a_1 \sigma(y_{PV}) + a_2 \mu_{\text{bkg}}$, where y_{PV} and $\sigma(y_{PV})$ are mean and standard deviation of the vertical position of the luminous region, and μ_{bkg} is the estimated average number of background interactions per event in the run. The fit determines the global parameters a_0 , a_1 and a_2 . The dotted vertical lines show the fill boundaries.