1 Supplementary material for LHCb-PAPER-2019-028

This appendix contains supplementary material that will be posted on the public CDS record but will not appear in the paper.

The definition of the binning scheme B is reported in Table 1. In addition, the contribution of each candidate to the energy test result is presented for the P-even test for CP-violation in Fig. 1, for the distance scale $\delta = 2.7\text{GeV}^2/c^4$. This uses the method set out in Ref. [1], whereby the contribution from each candidate i to the overall test statistic T is quantified by a value T_i and then the 'significance' of this contribution is considered.

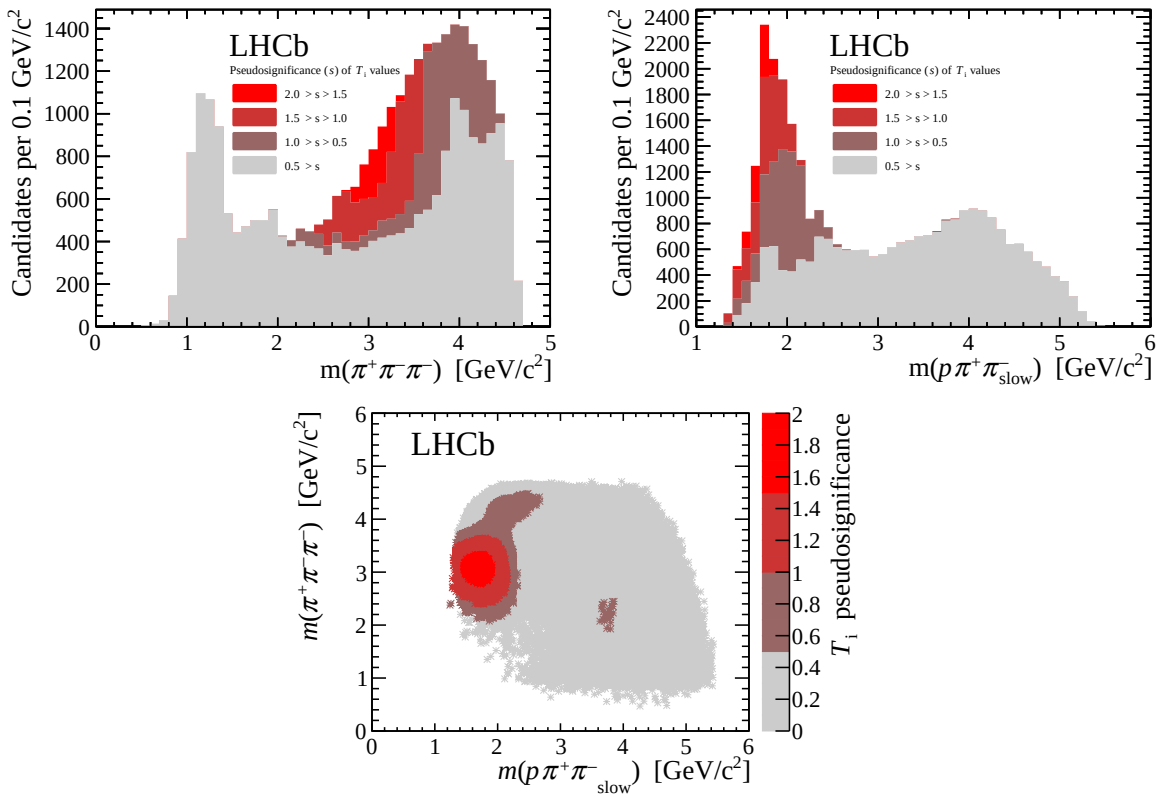

Figure 1: Candidates are classed by their relative contribution to the overall value of T. The distributions of these different classes are then displayed as a function of different invariant masses formed from combining the final-state particles.

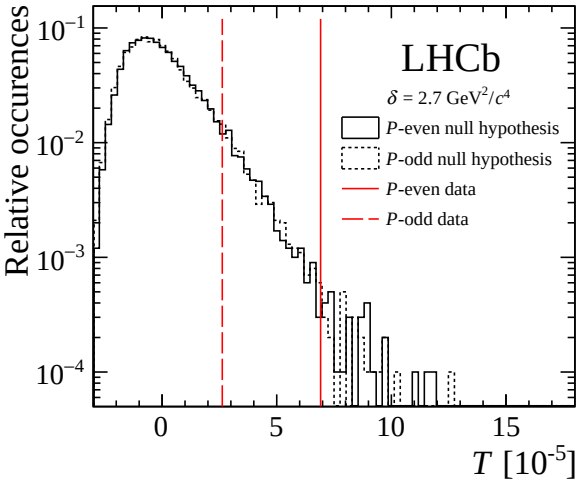

Figure 2: Distributions of T under the null hypothesis obtained from permutations, using the energy test with $\delta = 2.7\,\text{GeV}^2/c^4$ in the P-even and P-odd configurations when searching for CP violation. The values of T obtained from data are shown as vertical lines.

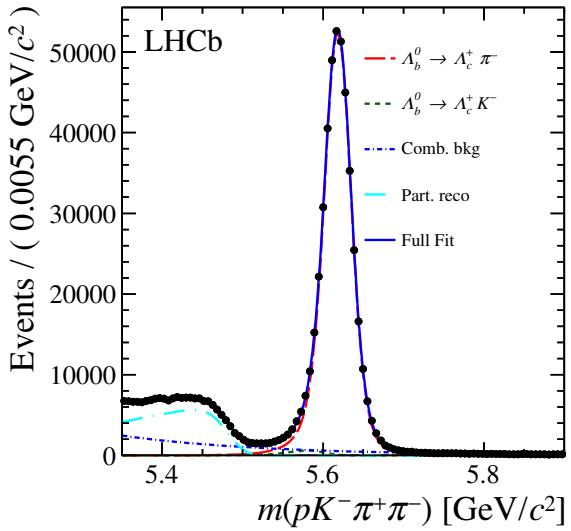

Figure 3: Invariant mass distribution for $\Lambda_b^0 \to \Lambda_c^+ (\to pK^-\pi^+)\pi^-$ candidates with the result of the fit overlaid. The solid and dotted lines describe the projections of the fit results for various components as listed in the legend.

Table 1: Definition of binning scheme B. This binning scheme is based on the helicity angles of the decay topology $\Lambda_b^0 \to (N^{*+} \to (\Delta^{++} \to p\pi^+)\,\pi^-)\,\pi^-$ where φ is the azimuthal angle of the proton in the Δ^{++} rest frame and $\theta_{\Delta^{++}}$ (θ_p) is the polar angle of the Δ^{++} (p) in the N^{*+} (Δ^{++}) rest frame.

Bin number	Polar angles	Azimuthal angles
1	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$\lvert\varphi\rvert \in [0, \pi/2]$
2	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$\lvert\varphi\rvert \in [0, \pi/2]$
3	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$\lvert\varphi\rvert \in [0, \pi/2]$
4	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$\lvert\varphi\rvert \in [0, \pi/2]$
5	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$\lvert\varphi\rvert \in [0, \pi/2]$
6	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta++} \in [3\pi/4, \pi]$	$\lvert\varphi\rvert \in [0, \pi/2]$
7	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$\lvert\varphi\rvert \in [0, \pi/2]$
8	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$\lvert\varphi\rvert \in [0, \pi/2]$
9	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
10	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
11	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
12	$\theta_p \in [0, \pi/4]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [\pi/2, 3\pi/4]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
13	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
14	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
15	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [\pi/2, 3\pi/4]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [0, \pi/4]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$
16	$\theta_p \in [\pi/4, \pi/2]$ and $\theta_{\Delta^{++}} \in [3\pi/4, \pi]$ $\theta_p \in [3\pi/4, \pi]$ and $\theta_{\Delta^{++}} \in [\pi/4, \pi/2]$	$\lvert\varphi\rvert \in [\pi/2, \pi]$

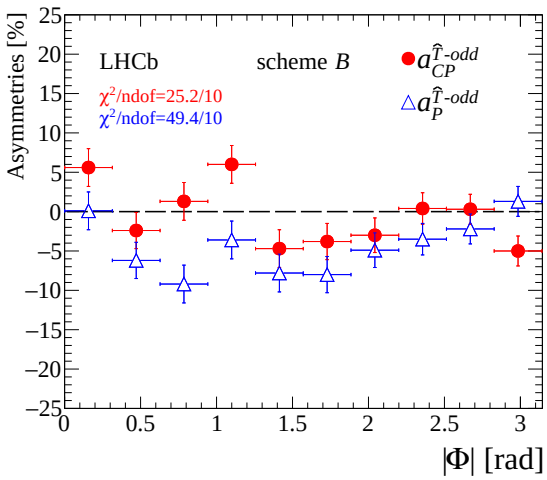

Figure 4: Measured asymmetries for binning scheme B. The error bars represent the sum in quadrature of the statistical and systematic uncertainties. The χ^2/ndof is calculated with respect to the null hypothesis and it includes statistical and systematic uncertainties.

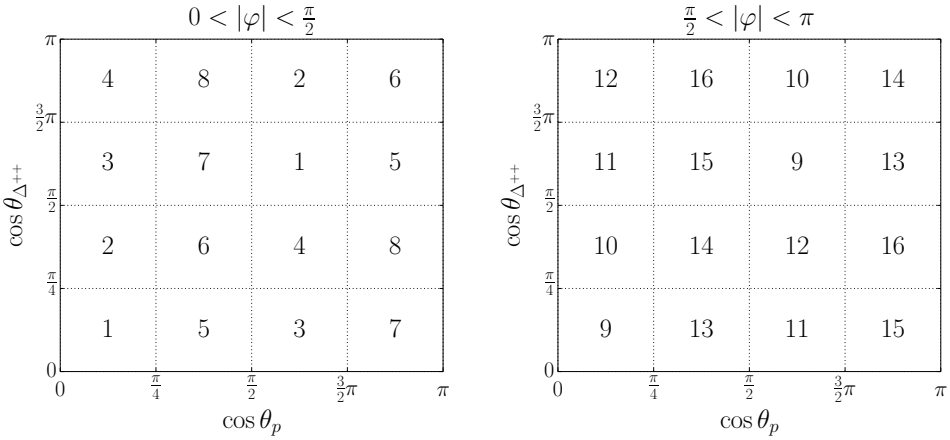

Figure 5: Graphical visualisation of the binning scheme definition for scheme A.

Table 2: Results obtained with different binning schemes; the p-values take into account systematic effects and are reported for the CP- and P-conserving hypotheses.

Binning scheme	Dominant contribution	Hypothesis	p-value
A_1 (helicity angles)	$\Lambda_b^0 \to p a_1^-$	CP-conserving	9.8×10^{-2}
		P-conserving	1.8×10^{-5}
A_2 (helicity angles)	$\Lambda_b^0 \to N^{*+}\pi^-$	CP-conserving	6.4×10^{-1}
		P-conserving	6.4×10^{-2}
B (in $\lvert\Phi\rvert$)	Entire sample	CP-conserving	5.0×10^{-3}
		P-conserving	3.5×10^{-7}
B_1 (in $\lvert\Phi\rvert$)	$\Lambda_b^0 \to p a_1^-$	CP-conserving	4.7×10^{-2}
		P-conserving	4.3×10^{-8}
B_2 (in $\lvert\Phi\rvert$)	$\Lambda_b^0 \to N^{*+}\pi^-$	CP-conserving	3.4×10^{-3}
		P-conserving	1.9×10^{-3}

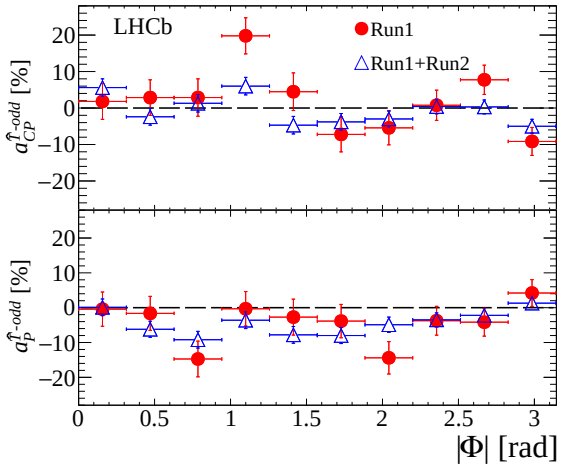

Figure 6: Measured asymmetries for binning scheme B with different datasets. The error bars represent the sum in quadrature of the statistical and systematic uncertainties.

Table 3: Measured asymmetries in bins of the helicity angles in the region of the phase space dominated by the $\Lambda_b^0 \to pa_1$ contribution (scheme A_1). The first (second) error represents the statistic (systematic) uncertainty.

Bin	$A_{\widehat{T}}(\%)$	$\overline{A}_{\widehat{T}}(\%)$	$a_P^{\widehat{T}\text{-odd}}(\%)$	$a_{CP}^{\widehat{T}\text{-odd}}(\%)$
1	$-8.2 \pm 4.6 \pm 0.8$	$-2.3 \pm 4.5 \pm 0.8$	$-5.2 \pm 3.2 \pm 0.6$	$-3.0 \pm 3.2 \pm 0.6$
2	$-9.4 \pm 2.7 \pm 0.9$	$-4.7 \pm 2.7 \pm 0.9$	$-7.0 \pm 1.9 \pm 0.6$	$-2.3 \pm 1.9 \pm 0.6$
3	$-6.9 \pm 9.0 \pm 1.1$	$-8.5 \pm 8.8 \pm 1.1$	$-7.7 \pm 6.3 \pm 0.8$	$0.8 \pm 6.3 \pm 0.8$
4	$-5.9 \pm 5.4 \pm 1.7$	$2.7 \pm 5.4 \pm 1.7$	$-1.6 \pm 3.8 \pm 1.2$	$-4.3 \pm 3.8 \pm 1.2$
5	$-38.8 \pm 11.4 \pm 2.2$	$8.2 \pm 9.9 \pm 2.2$	$-15.3 \pm 7.6 \pm 1.6$	$-23.5 \pm 7.6 \pm 1.6$
6	$-26.6 \pm 8.9 \pm 2.6$	$-22.3 \pm 9.5 \pm 2.6$	$-24.4 \pm 6.6 \pm 1.8$	$-2.2 \pm 6.6 \pm 1.8$
7	$-12.6 \pm 9.2 \pm 1.1$	$11.4 \pm 9.2 \pm 1.1$	$-0.6 \pm 6.6 \pm 0.8$	$-12.0 \pm 6.6 \pm 0.8$
8	$-4.9 \pm 7.1 \pm 0.9$	$4.4 \pm 8.0 \pm 0.9$	$-0.3 \pm 5.4 \pm 0.6$	$-4.7 \pm 5.4 \pm 0.6$
9	$-15.6 \pm 7.6 \pm 0.6$	$-5.7 \pm 9.2 \pm 0.6$	$-10.7 \pm 6.0 \pm 0.4$	$-4.9 \pm 6.0 \pm 0.4$
10	$-1.4 \pm 4.1 \pm 0.7$	$-11.1 \pm 4.0 \pm 0.7$	$-6.3 \pm 2.9 \pm 0.5$	$4.9 \pm 2.9 \pm 0.5$
11	$-15.2 \pm 7.9 \pm 1.2$	$-12.2 \pm 9.1 \pm 1.2$	$-13.7 \pm 6.0 \pm 0.9$	$-1.5 \pm 6.1 \pm 0.9$
12	$4.6 \pm 4.2 \pm 1.1$	$-2.5 \pm 4.2 \pm 1.1$	$1.0 \pm 3.0 \pm 0.8$	$3.6 \pm 3.0 \pm 0.8$
13	$-10.2 \pm 8.5 \pm 0.9$	$-2.6 \pm 8.4 \pm 0.9$	$-6.4 \pm 6.0 \pm 0.7$	$-3.8 \pm 6.0 \pm 0.7$
14	$-6.7 \pm 8.3 \pm 1.2$	$-12.6 \pm 8.2 \pm 1.2$	$-9.6 \pm 5.8 \pm 0.8$	$3.0 \pm 5.9 \pm 0.8$
15	$-7.1 \pm 11.2 \pm 0.6$	$10.9 \pm 10.9 \pm 0.6$	$1.9 \pm 7.9 \pm 0.4$	$-9.0 \pm 7.9 \pm 0.4$
16	$-3.9 \pm 14.1 \pm 0.7$	$-10.8 \pm 14.1 \pm 0.7$	$-7.4 \pm 10.1 \pm 0.5$	$3.4 \pm 10.1 \pm 0.5$

Table 4: Measured asymmetries in bins of the helicity angles in the region of the phase space dominated by the $\Lambda_b^0 \to N^{*+}\pi^-$ contribution (scheme A_2). The first (second) error represents the statistic (systematic) uncertainty.

Bin	$A_{\widehat{T}}(\%)$	$\overline{A}_{\widehat{T}}(\%)$	$a_P^{\widehat{T}\text{-odd}}(\%)$	$a_{CP}^{\widehat{T}\text{-odd}}(\%)$
1	$-5.7 \pm 4.1 \pm 0.8$	$-10.0 \pm 4.2 \pm 0.8$	$-7.8 \pm 3.0 \pm 0.6$	$2.2 \pm 3.0 \pm 0.6$
2	$-10.3 \pm 5.8 \pm 0.9$	$6.1 \pm 6.2 \pm 0.9$	$-2.1 \pm 4.2 \pm 0.6$	$-8.2 \pm 4.2 \pm 0.6$
3	$-1.1 \pm 5.7 \pm 1.1$	$-9.7 \pm 5.9 \pm 1.1$	$-5.4 \pm 4.1 \pm 0.8$	$4.3 \pm 4.1 \pm 0.8$
4	$-19.1 \pm 7.7 \pm 1.7$	$-10.0 \pm 7.4 \pm 1.7$	$-14.5 \pm 5.4 \pm 1.2$	$-4.5 \pm 5.4 \pm 1.2$
5	$0.8 \pm 5.2 \pm 2.2$	$-4.2 \pm 5.1 \pm 2.2$	$-1.7 \pm 3.6 \pm 1.6$	$2.5 \pm 3.6 \pm 1.6$
6	$-4.6 \pm 5.3 \pm 2.6$	$-1.2 \pm 5.3 \pm 2.6$	$-2.9 \pm 3.8 \pm 1.8$	$-1.7 \pm 3.8 \pm 1.8$
7	$-2.4 \pm 4.1 \pm 1.1$	$-4.0 \pm 4.0 \pm 1.1$	$-3.2 \pm 2.9 \pm 0.8$	$0.8 \pm 2.9 \pm 0.8$
8	$2.0 \pm 5.4 \pm 0.9$	$-10.3 \pm 5.3 \pm 0.9$	$-4.2 \pm 3.8 \pm 0.6$	$6.2 \pm 3.8 \pm 0.6$
9	$-1.5 \pm 5.1 \pm 0.6$	$-6.7 \pm 4.9 \pm 0.6$	$-4.1 \pm 3.5 \pm 0.4$	$2.6 \pm 3.6 \pm 0.4$
10	$-9.1 \pm 7.4 \pm 0.7$	$1.9 \pm 7.1 \pm 0.7$	$-3.6 \pm 5.2 \pm 0.5$	$-5.5 \pm 5.2 \pm 0.5$
11	$-2.0 \pm 4.7 \pm 1.2$	$3.1 \pm 4.5 \pm 1.2$	$0.6 \pm 3.2 \pm 0.9$	$-2.6 \pm 3.2 \pm 0.9$
12	$-0.4 \pm 7.0 \pm 1.1$	$6.6 \pm 6.6 \pm 1.1$	$3.1 \pm 4.8 \pm 0.8$	$-3.5 \pm 4.9 \pm 0.8$
13	$1.9 \pm 4.1 \pm 0.9$	$-5.2 \pm 4.2 \pm 0.9$	$-1.7 \pm 3.0 \pm 0.7$	$3.5 \pm 3.0 \pm 0.7$
14	$-1.1 \pm 5.7 \pm 1.2$	$-0.3 \pm 5.3 \pm 1.2$	$-0.7 \pm 3.9 \pm 0.8$	$-0.4 \pm 3.9 \pm 0.8$
15	$0.2 \pm 5.0 \pm 0.6$	$3.1 \pm 4.9 \pm 0.6$	$1.7 \pm 3.5 \pm 0.4$	$-1.4 \pm 3.5 \pm 0.4$
16	$8.9 \pm 5.7 \pm 0.7$	$6.6 \pm 5.3 \pm 0.7$	$7.7 \pm 3.9 \pm 0.5$	$1.1 \pm 3.9 \pm 0.5$

Table 5: Measured asymmetries in bins of the $|\Phi|$ angle (scheme B). The first (second) error represents the statistic (systematic) uncertainty.

Bin	$A_{\widehat{T}}(\%)$	$\overline{A}_{\widehat{T}}(\%)$	$a_P^{\widehat{T}\text{-odd}}(\%)$	$a_{CP}^{\widehat{T}\text{-odd}}(\%)$
1	$5.7 \pm 3.4 \pm 1.3$	$-5.5 \pm 3.3 \pm 1.3$	$0.1 \pm 2.4 \pm 0.9$	$5.6 \pm 2.4 \pm 0.9$
2	$-8.6 \pm 3.2 \pm 1.2$	$-3.8 \pm 3.4 \pm 1.2$	$-6.2 \pm 2.3 \pm 0.9$	$-2.4 \pm 2.3 \pm 0.9$
3	$-7.8 \pm 3.4 \pm 1.2$	$-10.5 \pm 3.4 \pm 1.2$	$-9.2 \pm 2.4 \pm 0.8$	$1.3 \pm 2.4 \pm 0.8$
4	$2.4 \pm 3.5 \pm 1.1$	$-9.6 \pm 3.4 \pm 1.1$	$-3.6 \pm 2.4 \pm 0.8$	$6.0 \pm 2.4 \pm 0.8$
5	$-12.6 \pm 3.5 \pm 1.1$	$-3.1 \pm 3.3 \pm 1.1$	$-7.8 \pm 2.4 \pm 0.8$	$-4.7 \pm 2.4 \pm 0.8$
6	$-11.8 \pm 3.3 \pm 1.1$	$-4.3 \pm 3.3 \pm 1.1$	$-8.0 \pm 2.3 \pm 0.8$	$-3.8 \pm 2.3 \pm 0.8$
7	$-7.9 \pm 3.1 \pm 1.2$	$-1.8 \pm 3.2 \pm 1.2$	$-4.9 \pm 2.2 \pm 0.8$	$-3.0 \pm 2.2 \pm 0.8$
8	$-3.1 \pm 2.9 \pm 1.1$	$-3.9 \pm 2.9 \pm 1.1$	$-3.5 \pm 2.0 \pm 0.8$	$0.4 \pm 2.0 \pm 0.8$
9	$-1.9 \pm 2.7 \pm 1.0$	$-2.4 \pm 2.7 \pm 1.0$	$-2.2 \pm 1.9 \pm 0.7$	$0.3 \pm 1.9 \pm 0.7$
10	$-3.7 \pm 2.6 \pm 1.0$	$6.3 \pm 2.6 \pm 1.0$	$1.3 \pm 1.9 \pm 0.7$	$-5.0 \pm 1.9 \pm 0.7$

Table 6: Measured asymmetries in bins of the $|\Phi|$ angle in the region of the phase space dominated by the $\Lambda_b^0 \to pa_1$ contribution (scheme B_1). The first (second) error represents the statistic (systematic) uncertainty.

Bin	$A_{\widehat{T}}(\%)$	$\overline{A}_{\widehat{T}}(\%)$	$a_P^{\widehat{T}\text{-odd}}(\%)$	$a_{CP}^{\widehat{T}\text{-odd}}(\%)$
1	$1.6 \pm 4.4 \pm 1.3$	$-10.1 \pm 4.2 \pm 1.3$	$-4.3 \pm 3.0 \pm 0.9$	$5.9 \pm 3.0 \pm 0.9$
2	$-6.9 \pm 4.2 \pm 1.2$	$2.4 \pm 4.5 \pm 1.2$	$-2.3 \pm 3.1 \pm 0.9$	$-4.7 \pm 3.1 \pm 0.9$
3	$-10.2 \pm 4.7 \pm 1.2$	$-12.2 \pm 4.8 \pm 1.2$	$-11.2 \pm 3.4 \pm 0.8$	$1.0 \pm 3.4 \pm 0.8$
4	$-0.2 \pm 5.2 \pm 1.1$	$-2.4 \pm 4.8 \pm 1.1$	$-1.3 \pm 3.5 \pm 0.8$	$1.1 \pm 3.5 \pm 0.8$
5	$-15.6 \pm 5.2 \pm 1.1$	$-5.9 \pm 4.7 \pm 1.1$	$-10.7 \pm 3.5 \pm 0.8$	$-4.9 \pm 3.5 \pm 0.8$
6	$-10.4 \pm 5.0 \pm 1.1$	$-10.3 \pm 5.0 \pm 1.1$	$-10.3 \pm 3.5 \pm 0.8$	$-0.1 \pm 3.5 \pm 0.8$
7	$-10.9 \pm 5.0 \pm 1.2$	$-11.3 \pm 5.5 \pm 1.2$	$-11.1 \pm 3.7 \pm 0.8$	$0.2 \pm 3.7 \pm 0.8$
8	$-12.6 \pm 4.5 \pm 1.1$	$-6.4 \pm 4.7 \pm 1.1$	$-9.5 \pm 3.2 \pm 0.8$	$-3.1 \pm 3.3 \pm 0.8$
9	$-10.8 \pm 4.6 \pm 1.0$	$-3.5 \pm 4.6 \pm 1.0$	$-7.1 \pm 3.2 \pm 0.7$	$-3.7 \pm 3.2 \pm 0.7$
10	$-3.9 \pm 4.4 \pm 1.0$	$15.3 \pm 4.5 \pm 1.0$	$5.7 \pm 3.1 \pm 0.7$	$-9.6 \pm 3.1 \pm 0.7$

Table 7: Measured asymmetries in bins of the $|\Phi|$ angle in the region of the phase space dominated by the $\Lambda_b^0 \to N^{*+}\pi^-$ contribution (scheme B_2). The first (second) error represents the statistic (systematic) uncertainty.

Bin	$A_{\widehat{T}}(\%)$	$\overline{A}_{\widehat{T}}(\%)$	$a_P^{\widehat{T}\text{-odd}}(\%)$	$a_{CP}^{\widehat{T}\text{-odd}}(\%)$
1	$12.8 \pm 5.4 \pm 1.3$	$2.0 \pm 5.3 \pm 1.3$	$7.4 \pm 3.8 \pm 0.9$	$5.4 \pm 3.8 \pm 0.9$
2	$-9.5 \pm 5.0 \pm 1.2$	$-12.3 \pm 5.0 \pm 1.2$	$-10.9 \pm 3.5 \pm 0.9$	$1.4 \pm 3.5 \pm 0.9$
3	$-5.6 \pm 4.8 \pm 1.2$	$-8.6 \pm 4.8 \pm 1.2$	$-7.1 \pm 3.4 \pm 0.8$	$1.5 \pm 3.4 \pm 0.8$
4	$4.7 \pm 4.8 \pm 1.1$	$-17.7 \pm 4.8 \pm 1.1$	$-6.5 \pm 3.4 \pm 0.8$	$11.2 \pm 3.4 \pm 0.8$
5	$-10.4 \pm 4.8 \pm 1.1$	$-0.3 \pm 4.5 \pm 1.1$	$-5.3 \pm 3.3 \pm 0.8$	$-5.0 \pm 3.3 \pm 0.8$
6	$-14.2 \pm 4.3 \pm 1.1$	$1.0 \pm 4.4 \pm 1.1$	$-6.6 \pm 3.1 \pm 0.8$	$-7.6 \pm 3.1 \pm 0.8$
7	$-5.4 \pm 3.9 \pm 1.2$	$3.8 \pm 3.9 \pm 1.2$	$-0.8 \pm 2.8 \pm 0.8$	$-4.6 \pm 2.8 \pm 0.8$
8	$4.3 \pm 3.8 \pm 1.1$	$-2.3 \pm 3.6 \pm 1.1$	$1.0 \pm 2.6 \pm 0.8$	$3.3 \pm 2.6 \pm 0.8$
9	$3.7 \pm 3.3 \pm 1.0$	$-0.9 \pm 3.3 \pm 1.0$	$1.4 \pm 2.4 \pm 0.7$	$2.3 \pm 2.4 \pm 0.7$
10	$-3.5 \pm 3.3 \pm 1.0$	$0.9 \pm 3.2 \pm 1.0$	$-1.3 \pm 2.3 \pm 0.7$	$-2.2 \pm 2.3 \pm 0.7$

References

[1] M. Williams, *Observing CP violation in many-body decays*, Phys. Rev. **D84** (2011) 054015, arXiv:1105.5338.