parameter	value	error	parameter(#)
$\hat{f}_{B^0\to\pi^+\pi^-}$	0.148	0.006	1
$\hat{f}_{B^0\to K^+\pi^-}$	0.579	0.008	2
$\frac{\hat{f}_{\overline{B}^0\to K^-\pi^+} - \hat{f}_{B^0\to K^+\pi^-}}{\hat{f}_{\overline{B}^0\to K^-\pi^+} + \hat{f}_{B^0\to K^+\pi^-}}$	-0.079	0.014	3
$\hat{f}_{B^0_s\to K^-\pi^+}$	0.043	0.004	4
$\frac{\hat{f}_{\overline{B}^0_s\to K^+\pi^-} - \hat{f}_{B^0_s\to K^-\pi^+}}{\hat{f}_{\overline{B}^0_s\to K^+\pi^-} + \hat{f}_{B^0_s\to K^-\pi^+}}$	0.174	0.081	5
$\hat{f}_{B^0_s\to\pi^+\pi^-}$	0.005	0.001	6
$\hat{f}_{B^0\to K^+K^-}$	0.007	0.003	7
$\hat{f}_{\Lambda^0_b\to pK^-}$	0.026	0.002	8
$\frac{\hat{f}_{\overline{\Lambda}^0_b\to\overline{p}K^+} - \hat{f}_{\Lambda^0_b\to pK^-}}{\hat{f}_{\overline{\Lambda}^0_b\to\overline{p}K^+} + \hat{f}_{\Lambda^0_b\to pK^-}}$	-0.047	0.093	9
$\hat{f}_{\Lambda^0_b\to p\pi^-}$	0.022	0.002	10
$\frac{\hat{f}_{\overline{\Lambda}^0_b\to\overline{p}\pi^+} - \hat{f}_{\Lambda^0_b\to p\pi^-}}{\hat{f}_{\overline{\Lambda}^0_b\to\overline{p}\pi^+} + \hat{f}_{\Lambda^0_b\to p\pi^-}}$	-0.008	0.077	11
$\hat{f}_{B^0_s\to K^+K^-}$	0.170	0.006	-
$\hat{b}$ sca	0.285	0.004	13
$\hat{b}$ scc	0.217	0.006	14
$\hat{c}_{\rm E}$ sca	-0.063	fixed	-
$\hat{c}_{\rm E}$ scc	-0.059	fixed	-
$\hat{w}^{\rm E}_{K^+}$ sca	0.409	0.026	18
$\hat{w}^{\rm E}_{K^-}$ sca	0.397	0.025	21
$\hat{w}^{\rm E}_{K^+}$ scc	0.574	0.073	24
$\hat{w}^{\rm E}_{K^-}$ scc	0.527	0.074	27
$\hat{f}_{\rm A}$ sca	0.571	0.010	29
$\hat{f}_{\rm A}$ scc	0.790	0.017	30
$\hat{m}_{\rm A}$ [GeV$^2/c^4$] (sca)	26.489	fixed	-
$\hat{c}_{\rm A}$ sca	1.559	0.807	34
$\hat{m}_{\rm A}$ [GeV$^2/c^4$] (scc)	26.481	fixed	-
$\hat{c}_{\rm A}$ scc	2.986	1.275	36
$\hat{w}^{\rm A}_{\pi}$	0.706	0.011	39
$\hat{d}^c_1$	0.117	fixed	-
$\hat{\mu}^c_1$ [ns]	0.134	fixed	-
$\hat{\sigma}^c_1$ [ns]	1.092	fixed	-
$\hat{\mu}^c_2$ [ns]	-0.019	fixed	-
$\hat{\sigma}^c_2$ [ns]	0.298	fixed	-
$\hat{\delta}^c_{dE/dx}$ [ns]	-0.065	0.013	49
$\hat{\delta}^p_{dE/dx}$ [ns]	-0.500	0.072	48
$\hat{\delta}_m$	-0.000	0.000	31
$\hat{s}_m$	1.094	0.015	50
$\hat{N}$	24061	155	52
$\hat{p}$	0.747	0.003	53

Table 5: Results of fit of composition. Signal (background) related quantities are reported in the upper (lower) section. The last column reports the legend to convert the parameter number into physics quantity for interpreting the correlation matrix shown at pag. 36; the missing codes refer to parameters which are not part of the set of primary fit parameters ($\vec{\theta}$). C-conjugate modes are implied except for the parameter in the third, fifth, nineth and eleventh row.

observable	raw
$\hat{\mathcal{A}}_{\rm CP}(B^0 \to K^+\pi^-) = \frac{\hat{f}_{\overline{B}^0\to K^-\pi^+} - \hat{f}_{B^0\to K^+\pi^-}}{\hat{f}_{\overline{B}^0\to K^-\pi^+} + \hat{f}_{B^0\to K^+\pi^-}}$	-0.079 ± 0.014
$\hat{\mathcal{A}}_{\rm CP}(B^0_s \to K^-\pi^+) = \frac{\hat{f}_{\overline{B}^0_s\to K^+\pi^-} - \hat{f}_{B^0_s\to K^-\pi^+}}{\hat{f}_{\overline{B}^0_s\to K^+\pi^-} + \hat{f}_{B^0_s\to K^-\pi^+}}$	0.174 ± 0.081
$\hat{\mathcal{A}}_{\rm CP}(\Lambda^0_b \to p\pi^-) = \frac{\hat{f}_{\overline{\Lambda}^0_b\to \overline{p}\pi^+} - \hat{f}_{\Lambda^0_b\to p\pi^-}}{\hat{f}_{\overline{\Lambda}^0_b\to \overline{p}\pi^+} + \hat{f}_{\Lambda^0_b\to p\pi^-}}$	-0.008 ± 0.077
$\hat{\mathcal{A}}_{\rm CP}(\Lambda^0_b \to pK^-) = \frac{\hat{f}_{\overline{\Lambda}^0_b\to \overline{p}K^+} - \hat{f}_{\Lambda^0_b\to pK^-}}{\hat{f}_{\overline{\Lambda}^0_b\to \overline{p}K^+} + \hat{f}_{\Lambda^0_b\to pK^-}}$	-0.047 ± 0.093
$\frac{\hat{f}_{\overline{B}^0\to K^-\pi^+} - \hat{f}_{B^0\to K^+\pi^-}}{\hat{f}_{\overline{B}^0_s\to K^+\pi^-} - \hat{f}_{B^0_s\to K^-\pi^+}}$	-6.122 ± 3.091
$\frac{\hat{f}_{B^0\to\pi^+\pi^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.256 ± 0.013
$\frac{\hat{f}_{B^0\to K^+K^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.012 ± 0.005
$\frac{\hat{f}_{B^0_s\to\pi^+\pi^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.009 ± 0.003
$\frac{\hat{f}_{B^0_s\to\pi^+\pi^-}}{\hat{f}_{B^0_s\to K^+K^-}}$	0.032 ± 0.009
$\frac{\hat{f}_{B^0_s\to K^-\pi^+}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.074 ± 0.007
$\frac{\hat{f}_{B^0_s\to K^-\pi^+}}{\hat{f}_{B^0_s\to K^+K^-}}$	0.252 ± 0.025
$\frac{\hat{f}_{B^0_s\to K^+K^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.295 ± 0.013
$\frac{\hat{f}_{\Lambda^0_b\to pK^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.044 ± 0.003
$\frac{\hat{f}_{\Lambda^0_b\to p\pi^-}}{\hat{f}_{B^0\to K^+\pi^-}}$	0.038 ± 0.003
$\frac{\hat{f}_{\Lambda^0_b\to p\pi^-}}{\hat{f}_{\Lambda^0_b\to pK^-}}$	0.855 ± 0.100

Table 6: Physics observables. The quantities reported in boldface are used to evaluate the final measurements. C-conjugate modes are implied in the lower section of the table.

mode			
$\mathcal{N}(B^0 \to \pi^+\pi^-)$	$+$	$\mathcal{N}(\overline{B}^0 \to \pi^+\pi^-)$	2609 ± 111
$\mathcal{N}(B^0 \to K^+\pi^-)$			5505 ± 111
$\mathcal{N}(\overline{B}^0 \to K^-\pi^+)$			4695 ± 105
$\mathcal{N}(B_s^0 \to K^-\pi^+)$			313 ± 43
$\mathcal{N}(\overline{B}_s^0 \to K^+\pi^-)$			444 ± 47
$\mathcal{N}(B_s^0 \to K^+K^-)$	$+$	$\mathcal{N}(\overline{B}_s^0 \to K^+K^-)$	3008 ± 111
$\mathcal{N}(B_s^0 \to \pi^+\pi^-)$	$+$	$\mathcal{N}(\overline{B}_s^0 \to \pi^+\pi^-)$	94 ± 28
$\mathcal{N}(B^0 \to K^+K^-)$	$+$	$\mathcal{N}(\overline{B}^0 \to K^+K^-)$	120 ± 49
$\mathcal{N}(\Lambda_b^0 \to pK^-)$			235 ± 27
$\mathcal{N}(\overline{\Lambda}_b^0 \to \overline{p}K^+)$			214 ± 26
$\mathcal{N}(\Lambda_b^0 \to p\pi^-)$			194 ± 21
$\mathcal{N}(\overline{\Lambda}_b^0 \to \overline{p}\pi^+)$			190 ± 21

Table 7: Yields returned from the fit of composition.