

Supplemental material for the Letter “Search for resonance-enhanced CP and angular asymmetries in the $\Lambda_c^+ \rightarrow p\mu^+\mu^-$ decay at LHCb”

The two-dimensional efficiency map used to correct for the relative phase-space-dependent efficiency variations is shown in Fig. S1. Figure S2 shows the dimuon-mass resolution as obtained from simulated samples. The summary of the systematic uncertainties on the measured signal asymmetries can be found in Table S1. The correlation matrix for the systematic uncertainties between the measured signal asymmetries can be found in Table S2. The measurements are assumed to be statistically independent.

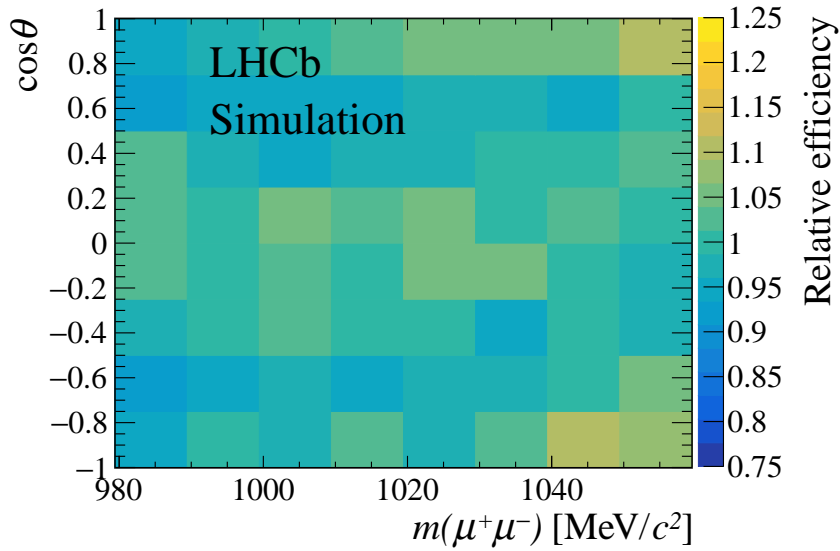


Figure S1: Two-dimensional efficiency map to correct for relative phase-space-dependent efficiency variations of selected $\Lambda_c^+ \rightarrow p\mu^+\mu^-$ candidates.

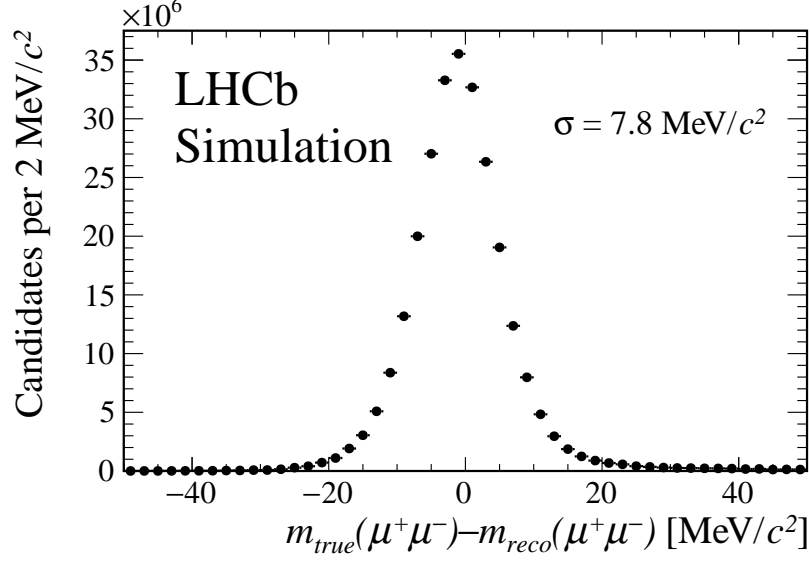


Figure S2: Dimuon-mass resolution of simulated $\Lambda_c^+ \rightarrow p\mu^+\mu^-$ candidates.

Table S1: Summary of the individual contributions to the systematic uncertainties on the observables, as well as the total systematic uncertainties. Dashes indicate sources which are inapplicable for the respective observable.

	Systematic uncertainty σ_A [10^{-2}]					
	$A_{CP\phi_{low}}$	$A_{FB}^{\Lambda_c^+}\phi_{low}$	$A_{FB}^{\bar{\Lambda}_c^-}\phi_{low}$	$A_{CP\phi_{high}}$	$A_{FB}^{\Lambda_c^+}\phi_{high}$	$A_{FB}^{\bar{\Lambda}_c^-}\phi_{high}$
Mass model	0.4	0.5	0.8	0.3	0.5	0.8
Efficiency correction	0.2	0.8	0.9	0.3	0.4	0.5
Simulation sample size	0.1	0.6	0.7	0.1	0.6	0.6
Kinematic weighting	0.2	—	—	0.2	—	—
Neutral kaon asymmetry	< 0.1	—	—	< 0.1	—	—
Λ_c^+ baryons from b hadrons	0.3	—	—	0.3	—	—
Angular resolution	—	< 0.1	< 0.1	—	< 0.1	< 0.1
Total systematic uncertainty	0.6	1.1	1.4	0.6	0.9	1.1

Table S2: Correlation matrix for the total systematic uncertainties.

	$A_{CP\phi_{low}}$	$A_{CP\phi_{high}}$	$A_{FB}^{\Lambda_c^+}\phi_{low}$	$A_{FB}^{\bar{\Lambda}_c^-}\phi_{low}$	$A_{FB}^{\Lambda_c^+}\phi_{high}$	$A_{FB}^{\bar{\Lambda}_c^-}\phi_{high}$
$A_{CP\phi_{low}}$	1	0.43	0	0	0	0
$A_{CP\phi_{high}}$		1	0	0	0	0
$A_{FB}^{\Lambda_c^+}\phi_{low}$			1	0.28	0	0
$A_{FB}^{\bar{\Lambda}_c^-}\phi_{low}$				1	0	0
$A_{FB}^{\Lambda_c^+}\phi_{high}$					1	0.34
$A_{FB}^{\bar{\Lambda}_c^-}\phi_{high}$						1