

Supplementary material for LHCb-PAPER-2023-007

Table 1: \mathcal{A}^{CP} measurements in percent in each final state and operational run, and the combined measurements. The first uncertainty is statistical, the second is internal systematic, and each measurement has an additional uncertainty of 0.3% from $\mathcal{A}^{CP}(B^+ \rightarrow J/\psi K^+)$ which is not tabulated.

Decay	Final state	Run 1	Run 2	Run 1+2
$D_s^- D^0$	$KK\pi, K\pi$	$-0.4 \pm 0.6 \pm 0.6$	$0.8 \pm 0.3 \pm 0.4$	$0.5 \pm 0.3 \pm 0.4$
	$KK\pi, K3\pi$	$0.4 \pm 0.9 \pm 0.6$	$1.0 \pm 0.4 \pm 0.5$	$0.8 \pm 0.4 \pm 0.5$
	combination	$-0.1 \pm 0.5 \pm 0.6$	$0.8 \pm 0.3 \pm 0.4$	$0.5 \pm 0.2 \pm 0.5$
$D_s^{*-} D^0$	$KK\pi, K\pi$	$2.5 \pm 3.1 \pm 1.2$	$-0.9 \pm 1.4 \pm 1.0$	$-0.3 \pm 1.3 \pm 1.0$
	$KK\pi, K3\pi$	$8.5 \pm 5.9 \pm 2.2$	$-1.6 \pm 2.2 \pm 0.9$	$-0.6 \pm 2.0 \pm 1.0$
	combination	$3.7 \pm 2.7 \pm 1.3$	$-1.1 \pm 1.2 \pm 0.9$	$-0.5 \pm 1.1 \pm 1.0$
$D_s^- D^{*0}$	$KK\pi, K\pi$	$-3.7 \pm 2.3 \pm 0.9$	$2.4 \pm 1.2 \pm 0.6$	$1.1 \pm 1.1 \pm 0.6$
	$KK\pi, K3\pi$	$-0.1 \pm 2.5 \pm 0.8$	$1.6 \pm 1.4 \pm 0.6$	$1.2 \pm 1.2 \pm 0.6$
	combination	$-2.0 \pm 1.7 \pm 0.8$	$2.1 \pm 0.9 \pm 0.6$	$1.1 \pm 0.8 \pm 0.6$
$D^- D^0$	$K\pi\pi, K\pi$	$1.2 \pm 2.9 \pm 0.5$	$1.7 \pm 1.4 \pm 0.4$	$1.6 \pm 1.3 \pm 0.4$
	$K\pi\pi, K3\pi$	$5.0 \pm 4.1 \pm 0.6$	$4.2 \pm 1.9 \pm 0.6$	$4.3 \pm 1.7 \pm 0.6$
	combination	$2.4 \pm 2.4 \pm 0.5$	$2.6 \pm 1.1 \pm 0.4$	$2.5 \pm 1.0 \pm 0.4$
$D^- D^{*0}$	$K\pi\pi, K\pi$	$1.9 \pm 5.3 \pm 1.1$	$0.2 \pm 2.8 \pm 1.6$	$0.6 \pm 2.5 \pm 1.4$
	$K\pi\pi, K3\pi$	$-0.9 \pm 9.7 \pm 4.5$	$-2.0 \pm 3.3 \pm 2.4$	$-1.9 \pm 3.1 \pm 2.5$
	combination	$1.4 \pm 4.7 \pm 1.7$	$-0.6 \pm 2.2 \pm 1.4$	$-0.2 \pm 2.0 \pm 1.4$
$D^{*-} D^0$	$K\pi\pi_s, K\pi$	$9.5 \pm 5.6 \pm 0.9$	$3.0 \pm 2.8 \pm 0.5$	$4.2 \pm 2.5 \pm 0.6$
	$K\pi\pi_s, K3\pi$	$-2.9 \pm 7.2 \pm 1.0$	$3.5 \pm 3.3 \pm 0.6$	$2.3 \pm 3.0 \pm 0.6$
	$K3\pi\pi_s, K\pi$	$3.9 \pm 7.1 \pm 1.0$	$2.8 \pm 3.3 \pm 0.5$	$3.0 \pm 3.0 \pm 0.5$
	combination	$4.6 \pm 3.7 \pm 0.9$	$3.1 \pm 1.8 \pm 0.5$	$3.3 \pm 1.6 \pm 0.6$
$D^{*-} D^{*0}$	$K\pi\pi_s, K\pi$	$-7.4 \pm 7.1 \pm 13.0$	$5.7 \pm 3.5 \pm 1.5$	$5.0 \pm 3.3 \pm 1.6$
	$K\pi\pi_s, K3\pi$	$0.0 \pm 8.7 \pm 3.1$	$0.9 \pm 3.7 \pm 1.9$	$0.8 \pm 3.4 \pm 2.0$
	$K3\pi\pi_s, K\pi$	$5.6 \pm 8.9 \pm 7.5$	$-1.5 \pm 3.8 \pm 2.6$	$-1.4 \pm 3.7 \pm 2.7$
	combination	$1.7 \pm 6.3 \pm 4.8$	$2.4 \pm 2.1 \pm 1.6$	$2.3 \pm 2.1 \pm 1.7$

Table 2: Correlations in statistical uncertainty between the measured \mathcal{A}^{CP} .

	$D_s^- D^0$	$D_s^{*-} D^0$	$D_s^- D^{*0}$	$D^- D^0$	$D^- D^{*0}$	$D^{*-} D^0$	$D^{*-} D^{*0}$
$D_s^- D^0$	1						
$D_s^{*-} D^0$	0.092	1					
$D_s^- D^{*0}$	-0.025	-0.628	1				
$D^- D^0$	0	0	0	1			
$D^- D^{*0}$	0	0	0	0.060	1		
$D^{*-} D^0$	0	0	0	0	0	1	
$D^{*-} D^{*0}$	0	0	0	0	0	0.054	1

Table 3: Correlations in systematic uncertainty excluding the uncertainty from $\mathcal{A}^{CP}(B^+ \rightarrow J/\psi K^+)$ between the measured \mathcal{A}^{CP} . The correlation between all measured \mathcal{A}^{CP} due to the uncertainty from $\mathcal{A}^{CP}(B^+ \rightarrow J/\psi K^+)$ is 100%.

	$D_s^- D^0$	$D_s^{*-} D^0$	$D_s^- D^{*0}$	$D^- D^0$	$D^- D^{*0}$	$D^{*-} D^0$	$D^{*-} D^{*0}$
$D_s^- D^0$	1						
$D_s^{*-} D^0$	0.434	1					
$D_s^- D^{*0}$	0.714	-0.007	1				
$D^- D^0$	0.895	0.512	0.736	1			
$D^- D^{*0}$	0.282	0.536	0.438	0.530	1		
$D^{*-} D^0$	0.846	0.516	0.708	0.962	0.574	1	
$D^{*-} D^{*0}$	0.273	0.476	0.488	0.550	0.834	0.616	1