

Systematic Uncertainty of Branching Fraction

List of Systematical Errors for Each Decay Mode [%]

Source	$B^+ \rightarrow X_{c\bar{c}}K^+ \rightarrow p\bar{p}K^+$							
	$\eta_c(1S)$	J/ψ	$\chi_{c0}(1P)$	$\eta_c(2S)$	$\Psi(2S)$	$\Psi(3770)$	$X(3872)$	$X(3915)$
Tracking	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Proton PID	0.81	0.82	0.84	0.87	0.88	0.89	0.90	0.90
KID (K/ π)	0.87	0.89	0.78	0.89	0.89	0.94	1.07	1.10
K_S^0 reconstruction	-	-	-	-	-	-	-	-
Likelihood Ratio cut	0.56	0.49	6.58	18.03	7.74	118.948	10.20	17.22
MC statistical error	0.18	0.18	0.14	0.14	0.15	0.14	0.14	0.14
Fixed Parameters	5.61	0.09	6.75	21.42	9.09	120.085	12.27	42.05
Background PDF	0.33	0.01	0.37	0.21	0.06	37.2918	1.48	0.95
Number of BB pairs	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
Total [%]	6.03	2.17	9.66	28.08	12.13	173.102	16.18	45.50

Product Branching Fractions

B ⁺ Decay	Product Branching Fraction B ($B^+ \rightarrow X_{c\bar{c}}K^+ \rightarrow p\bar{p}K^+$)		
	our measurement	LHCb (2013, 2017)	World Average (PDG 2016)
$\eta_c(1S)$	$1.39 \pm 0.14 \pm 0.08$	$1.27 \pm 0.08 \pm 0.05 \pm 0.06$	1.44 ± 0.23
J/ ψ	$2.21 \pm 0.10 \pm 0.05$		2.18 ± 0.07
$\chi_{c0}(1P)$	$0.097 \pm 0.038 \pm 0.009$	$0.024 \pm 0.021 \pm 0.006 \pm 0.001$	0.0338 ± 0.0036
$\eta_c(2S)$	$0.0518 \pm 0.0334 \pm 0.0145$	$0.0347 \pm 0.0072 \pm 0.0020 \pm 0.0016$	
$\Psi(2S)$	$0.167 \pm 0.038 \pm 0.020$	$0.175 \pm 0.027 \pm 0.020 \pm 0.008$	0.180 ± 0.009
$\Psi(3770)$	$0.010 \pm 0.038 \pm 0.018$		
X(3872)	$0.008 \pm 0.014 \pm 0.001$	$-0.015 \pm 0.013 \pm 0.003 \pm 0.001$	
X(3915)	$0.016 \pm 0.026 \pm 0.007$	$0.022 \pm 0.029 \pm 0.004 \pm 0.001$	