NODE=S033

Λ_c^+

$I(J^P) = 0(\frac{1}{2}^+)$ Status: ∗∗∗∗

NODE=S033

The parity of the Λ_c^+ is defined to be positive (as are the parities of the proton, neutron, and Λ). The quark content is $u\,d\,c$. Results of an analysis of $pK^-\pi^+$ decays (JEZABEK 92) are consistent with $J = 1/2$. ABLIKIM 21N determines the Λ_c^+ spin to be $J = 1/2$, from an angular analysis of various 2-body Λ_c^+ decays in $e^+e^- \to \Lambda_c^+\overline{\Lambda}_c^-$.

We have omitted some results that have been superseded by later experiments. The omitted results may be found in earlier editions.

Λ_c^+ MASS

NODE=S033M

NODE=S033M

Our value in 2004, 2284.9±0.6 MeV, was the average of the measurements now filed below as "not used." The BABAR measurement is so much better that we use it alone. Note that it is about 2.6 (old) standard deviations above the 2004 value.

The fit also includes Σ_c–Λ_c^+ and Λ_c^{*+}–Λ_c^+ mass-difference measurements, but this doesn't affect the Λ_c^+ mass. The new (in 2006) Λ_c^+ mass simply pushes all those other masses higher.

NODE=S033M

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
2286.46±0.14 OUR FIT					
2286.46±0.14	4891	[1] AUBERT,B	05S	BABR	$\Lambda K_S^0 K^+$ and $\Sigma^0 K_S^0 K^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2284.7 ±0.6 ±0.7	1134	AVERY	91	CLEO	Six modes
2281.7 ±2.7 ±2.6	29	ALVAREZ	90B	NA14	$pK^-\pi^+$
2285.8 ±0.6 ±1.2	101	BARLAG	89	NA32	$pK^-\pi^+$
2284.7 ±2.3 ±0.5	5	AGUILAR-...	88B	LEBC	$pK^-\pi^+$
2283.1 ±1.7 ±2.0	628	ALBRECHT	88C	ARG	$pK^-\pi^+$, $p\overline{K}^0$, $\Lambda 3\pi$
2286.2 ±1.7 ±0.7	97	ANJOS	88B	E691	$pK^-\pi^+$
2281 ±3	2	JONES	87	HBC	$pK^-\pi^+$
2283 ±3	3	BOSETTI	82	HBC	$pK^-\pi^+$
2290 ±3	1	CALICCHIO	80	HYBR	$pK^-\pi^+$

[1] AUBERT,B 05S uses low-Q $\Lambda K_S^0 K^+$ and $\Sigma^0 K_S^0 K^+$ decays to minimize systematic errors. The error above includes systematic as well as statistical errors. Many cross checks and adjustments to properties of the BABAR detector, as well as the large number of clean events, make this by far the best measurement of the Λ_c^+ mass. NODE=S033M;LINKAGE=AU

Λ_c^+ MEAN LIFE

NODE=S033T

NODE=S033T

Measurements with an error $\geq 100 \times 10^{-15}$ s or with fewer than 20 events have been omitted from the Listings.

NODE=S033T

VALUE (10^{-15} s)	EVTS	DOCUMENT ID		TECN	COMMENT
202.6 ± 1.0 OUR AVERAGE					
203.20± 0.89± 0.77	107k	ABUDINEN	23A	BEL2	$\Lambda_c^+ \to pK^-\pi^+$, e^+e^- near $\Upsilon(4S)$
202.1 ± 1.7 ± 0.9	304k	[1] AAIJ	19AG	LHCB	$\Lambda_c^+ \to pK^-\pi^+$
204.6 ± 3.4 ± 2.5	8034	LINK	02C	FOCS	$\Lambda_c^+ \to pK^-\pi^+$
198.1 ± 7.0 ± 5.6	1630	KUSHNIR...	01	SELX	$\Lambda_c^+ \to pK^-\pi^+$
179.6 ± 6.9 ± 4.4	4749	MAHMOOD	01	CLE2	$e^+e^- \approx \Upsilon(4S)$
215 ±16 ± 8	1340	FRABETTI	93D	E687	γBe, $\Lambda_c^+ \to pK^-\pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
180 ±30 ±30	29	ALVAREZ	90	NA14	γ, $\Lambda_c^+ \to pK^-\pi^+$
200 ±30 ±30	90	FRABETTI	90	E687	γBe, $\Lambda_c^+ \to pK^-\pi^+$
196 $^{+23}_{-20}$	101	BARLAG	89	NA32	$pK^-\pi^+$ + c.c.
220 ±30 ±20	97	ANJOS	88B	E691	$pK^-\pi^+$ + c.c.

[1] AAIJ 19AG reports [Λ_c^+ MEAN LIFE] / [$D^\pm$ MEAN LIFE] = 0.1956 ± 0.0010 ± 0.0013 which we multiply by our best value $D^\pm$ MEAN LIFE = (1.033 ± 0.005) × 10^{-12} s. Our first error is their experiment's error and our second error is the systematic error from using our best value. NODE=S033T;LINKAGE=B

Λ_c^+ DECAY MODES

NODE=S033215;NODE=S033

Branching fractions marked with a footnote, e.g. [a], have been corrected for decay modes not observed in the experiments. For example, the submode fraction $\Lambda_c^+ \to p\overline{K}^*(892)^0$ seen in $\Lambda_c^+ \to pK^-\pi^+$ has been multiplied up to include $\overline{K}^*(892)^0 \to \overline{K}^0\pi^0$ decays. NODE=S033

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	
	Hadronic modes with a p or n: $S = -1$ final states				NODE=S033;CLUMP=A
Γ_1	pK_S^0		(1.61 ± 0.07) %	S=1.1	DESIG=24
Γ_2	pK_L^0		(1.67 ± 0.07) %		DESIG=169
Γ_3	$pK^-\pi^+$		(6.35 ± 0.25) %	S=1.3	DESIG=4
Γ_4	$p\overline{K}_0^*(700)^0$		(1.9 ± 0.6) × 10^{-3}		DESIG=152
Γ_5	$p\overline{K}^*(892)^0$	[a]	(1.41 ± 0.07) %		DESIG=5
Γ_6	$p\overline{K}_0^*(1430)$		(9.3 ± 1.8) × 10^{-3}		DESIG=150
Γ_7	$\Delta(1232)^{++}K^-$		(1.79 ± 0.09) %		DESIG=6
Γ_8	$\Delta(1600)^{++}K^-$		(2.9 ± 1.0) × 10^{-3}		DESIG=151
Γ_9	$\Delta(1700)^{++}K^-$		(2.5 ± 0.6) × 10^{-3}		DESIG=154
Γ_{10}	$\Lambda(1405)^0\pi^+$		(4.9 ± 1.9) × 10^{-3}		DESIG=155
Γ_{11}	$\Lambda(1520)\pi^+$	[a]	(1.18 ± 0.16) × 10^{-3}		DESIG=38
Γ_{12}	$\Lambda(1600)\pi^+$		(3.3 ± 1.2) × 10^{-3}		DESIG=158
Γ_{13}	$\Lambda(1670)\pi^+$		(7.5 ± 2.1) × 10^{-4}		DESIG=159
Γ_{14}	$\Lambda(1690)\pi^+$		(7.6 ± 2.3) × 10^{-4}		DESIG=160
Γ_{15}	$\Lambda(2000)\pi^+$		(6.1 ± 0.7) × 10^{-3}		DESIG=161
Γ_{16}	$pK^-\pi^+$ nonresonant		(3.5 ± 0.4) %		DESIG=39
Γ_{17}	$pK_S^0\pi^0$		(1.99 ± 0.12) %		DESIG=25
Γ_{18}	$pK_L^0\pi^0$		(2.02 ± 0.14) %		DESIG=171
Γ_{19}	$nK_S^0\pi^+$		(1.86 ± 0.09) %		DESIG=114
Γ_{20}	$nK_S^0K^+$		(3.9 $^{+1.7}_{-1.4}$) × 10^{-4}		DESIG=168
Γ_{21}	$nK_S^0\pi^+\pi^0$		(8.5 ± 1.3) × 10^{-3}		DESIG=167
Γ_{22}	$nK^-\pi^+\pi^+$		(1.90 ± 0.12) %		DESIG=140
Γ_{23}	$p\overline{K}^0\eta$		(8.9 ± 0.6) × 10^{-3}	S=1.1	DESIG=62
Γ_{24}	$pK_S^0\pi^+\pi^-$		(1.62 ± 0.11) %	S=1.1	DESIG=26
Γ_{25}	$pK_L^0\pi^+\pi^-$		(1.69 ± 0.11) %		DESIG=170
Γ_{26}	$pK^-\pi^+\pi^0$		(4.52 ± 0.28) %	S=1.5	DESIG=18
Γ_{27}	$pK^*(892)^-\pi^+$	[a]	(1.4 ± 0.5) %		DESIG=8
Γ_{28}	$p(K^-\pi^+)_{\rm nonresonant}\pi^0$		(4.6 ± 0.8) %		DESIG=40
Γ_{29}	$\Delta(1232)\overline{K}^*(892)$		seen		DESIG=19
Γ_{30}	$pK^-2\pi^+\pi^-$		(1.4 ± 1.0) × 10^{-3}		DESIG=23
Γ_{31}	$pK^-\pi^+2\pi^0$		(1.0 ± 0.5) %		DESIG=41
	Hadronic modes with a p or n: $S = 0$ final states				NODE=S033;CLUMP=D
Γ_{32}	$p\pi^0$		(1.6 $^{+0.7}_{-0.6}$) × 10^{-4}		DESIG=115
Γ_{33}	$n\pi^+$		(6.6 ± 1.3) × 10^{-4}		DESIG=129
Γ_{34}	$p\eta$		(1.49 ± 0.08) × 10^{-3}	S=1.1	DESIG=116
Γ_{35}	$p\eta'$		(4.9 ± 0.9) × 10^{-4}		DESIG=128
Γ_{36}	$p\omega(782)^0$		(8.9 ± 1.1) × 10^{-4}	S=1.2	DESIG=121
Γ_{37}	$p\pi^+\pi^-$		(4.67 ± 0.24) × 10^{-3}		DESIG=30
Γ_{38}	$pf_0(980)$	[a]	(3.5 ± 2.3) × 10^{-3}		DESIG=31
Γ_{39}	$p\rho(770)^0$		(1.5 ± 0.4) × 10^{-3}		DESIG=172
Γ_{40}	$n\pi^+\pi^0$		(6.4 ± 0.9) × 10^{-3}		DESIG=138

Γ_{41}	$n K^+ \pi^0$		$< 7.1 \times 10^{-4}$	CL=90%	DESIG=165
Γ_{42}	$n \pi^+ \pi^- \pi^+$		$(4.5 \pm 0.8) \times 10^{-3}$		DESIG=139
Γ_{43}	$p 2\pi^+ 2\pi^-$		$(2.3 \pm 1.5) \times 10^{-3}$		DESIG=32
Γ_{44}	$p K^+ K^-$		$(1.08 \pm 0.05) \times 10^{-3}$		DESIG=33
Γ_{45}	$p \phi$	[a]	$(1.05 \pm 0.14) \times 10^{-3}$	S=1.1	DESIG=34
Γ_{46}	$p K^+ K^-$ non-ϕ		$(5.3 \pm 1.2) \times 10^{-4}$		DESIG=70
Γ_{47}	$p K^0_S K^0_S$		$(2.38 \pm 0.18) \times 10^{-4}$		DESIG=144
Γ_{48}	$p \phi \pi^0$		$(10 \pm 4) \times 10^{-5}$		DESIG=118
Γ_{49}	$p K^+ K^- \pi^0$ nonresonant		$< 6.3 \times 10^{-5}$	CL=90%	DESIG=119
	Hadronic modes with a hyperon: $S = -1$ final states				NODE=S033;CLUMP=B
Γ_{50}	$\Lambda \pi^+$		(1.31 ± 0.05) %	S=1.1	DESIG=2
Γ_{51}	$\Lambda(1670) \pi^+$, $\Lambda(1670) \to \eta \Lambda$		$(3.5 \pm 0.5) \times 10^{-3}$		DESIG=126
Γ_{52}	$\Lambda \pi^+ \pi^0$		(7.10 ± 0.34) %	S=1.1	DESIG=49
Γ_{53}	$\Lambda \rho^+$		(4.1 ± 0.5) %		DESIG=52
Γ_{54}	$\Sigma(1385)^+ \pi^0$, $\Sigma^+ \to \Lambda \pi^+$		$(5.1 \pm 0.7) \times 10^{-3}$		DESIG=131
Γ_{55}	$\Sigma(1385)^0 \pi^+$, $\Sigma^0 \to \Lambda \pi^0$		$(5.6 \pm 0.8) \times 10^{-3}$		DESIG=132
Γ_{56}	$\Lambda \pi^- 2\pi^+$		(3.67 ± 0.26) %	S=1.4	DESIG=1
Γ_{57}	$\Sigma(1385)^+ \pi^+ \pi^-$, $\Sigma^{*+} \to \Lambda \pi^+$		(1.0 ± 0.5) %		DESIG=100
Γ_{58}	$\Sigma(1385)^- 2\pi^+$, $\Sigma^{*-} \to \Lambda \pi^-$		$(7.7 \pm 1.4) \times 10^{-3}$		DESIG=101
Γ_{59}	$\Lambda \pi^+ \rho^0$		(1.5 ± 0.6) %		DESIG=102
Γ_{60}	$\Sigma(1385)^+ \rho^0$, $\Sigma^{*+} \to \Lambda \pi^+$		$(5 \pm 4) \times 10^{-3}$		DESIG=103
Γ_{61}	$\Lambda \pi^- 2\pi^+$ nonresonant		< 1.1 %	CL=90%	DESIG=104
Γ_{62}	$\Lambda \pi^- \pi^0 2\pi^+$ total		(2.3 ± 0.8) %		DESIG=79
Γ_{63}	$\Lambda \pi^+ \eta$	[a]	(1.87 ± 0.11) %	S=1.1	DESIG=63
Γ_{64}	$\Sigma(1385)^+ \eta$	[a]	$(9.1 \pm 2.0) \times 10^{-3}$		DESIG=64
Γ_{65}	$\Lambda \pi^+ \omega$	[a]	(1.5 ± 0.5) %		DESIG=81
Γ_{66}	$\Lambda \pi^- \pi^0 2\pi^+$, no η or ω		$< 8 \times 10^{-3}$	CL=90%	DESIG=80
Γ_{67}	$\Lambda K^+ \overline{K}^0$		$(5.7 \pm 1.1) \times 10^{-3}$	S=2.0	DESIG=65
Γ_{68}	$\Xi(1690)^0 K^+$, $\Xi^{*0} \to \Lambda \overline{K}^0$		$(1.6 \pm 0.5) \times 10^{-3}$		DESIG=76
Γ_{69}	$\Sigma^0 \pi^+$		(1.29 ± 0.05) %		DESIG=10
Γ_{70}	$\Sigma^0 \pi^+ \eta$		$(7.6 \pm 0.8) \times 10^{-3}$		DESIG=125
Γ_{71}	$\Sigma^+ \pi^0$		(1.26 ± 0.10) %	S=1.1	DESIG=9
Γ_{72}	$\Sigma^+ \eta$		$(3.2 \pm 0.5) \times 10^{-3}$		DESIG=66
Γ_{73}	$\Sigma^+ \eta'$		$(4.2 \pm 0.9) \times 10^{-3}$		DESIG=123
Γ_{74}	$\Sigma^+ \pi^+ \pi^-$		(4.54 ± 0.20) %	S=1.2	DESIG=21
Γ_{75}	$\Sigma^+ \rho^0$		< 1.7 %	CL=95%	DESIG=46
Γ_{76}	$\Sigma^- 2\pi^+$		(1.87 ± 0.18) %		DESIG=59
Γ_{77}	$\Sigma^0 \pi^+ \pi^0$		(3.6 ± 0.4) %		DESIG=50
Γ_{78}	$\Sigma^+ \pi^0 \pi^0$		(1.57 ± 0.14) %		DESIG=122
Γ_{79}	$\Sigma^0 \pi^- 2\pi^+$		(1.12 ± 0.31) %		DESIG=51
Γ_{80}	$\Sigma^+ \omega$		(1.72 ± 0.20) %		DESIG=47
Γ_{81}	$\Sigma^- \pi^0 2\pi^+$		(2.1 ± 0.4) %		DESIG=117
Γ_{82}	$\Sigma^+ K^+ K^-$		$(3.6 \pm 0.4) \times 10^{-3}$	S=1.1	DESIG=35
Γ_{83}	$\Sigma^+ K^+ K^-$ (non-ϕ)				DESIG=162
Γ_{84}	$\Sigma^+ \phi$	[a]	$(4.0 \pm 0.5) \times 10^{-3}$	S=1.1	DESIG=43
Γ_{85}	$\Xi(1690)^0 K^+$, $\Xi^{*0} \to \Sigma^+ K^-$		$(1.03 \pm 0.25) \times 10^{-3}$		DESIG=75
Γ_{86}	$\Sigma^+ K^+ K^-$ nonresonant		$< 8 \times 10^{-4}$	CL=90%	DESIG=71
Γ_{87}	$\Xi^0 K^+$		$(5.5 \pm 0.7) \times 10^{-3}$		DESIG=44
Γ_{88}	$\Xi^- K^+ \pi^+$		$(6.3 \pm 0.5) \times 10^{-3}$	S=1.1	DESIG=27
Γ_{89}	$\Xi^0 K^+ \pi^0$		$(7.8 \pm 1.7) \times 10^{-3}$		DESIG=164
Γ_{90}	$\Xi(1530)^0 K^+$		$(4.9 \pm 0.6) \times 10^{-3}$	S=1.1	DESIG=120

Hadronic modes with a hyperon: $S = 0$ final states

NODE=S033;CLUMP=G

Γ_{91}	ΛK^+		$(6.48 \pm 0.31) \times 10^{-4}$		DESIG=73
Γ_{92}	$\Lambda K^+ \pi^0$		$(1.48 \pm 0.29) \times 10^{-3}$		DESIG=163
Γ_{93}	$\Lambda K^+ \pi^+ \pi^-$		$(4.2 \pm 1.6) \times 10^{-4}$		DESIG=106
Γ_{94}	$\Sigma^0 K^+$		$(3.73 \pm 0.31) \times 10^{-4}$		DESIG=74
Γ_{95}	$\Sigma^+ K^0_S$		$(4.8 \pm 1.4) \times 10^{-4}$		DESIG=130
Γ_{96}	$\Sigma^0 K^+ \pi^+ \pi^-$		$< 2.6 \times 10^{-4}$	CL=90%	DESIG=107
Γ_{97}	$\Sigma^0 K^+ \pi^0$		$< 1.8 \times 10^{-3}$	CL=90%	DESIG=166
Γ_{98}	$\Sigma^+ K^+ \pi^-$		$(2.04 \pm 0.26) \times 10^{-3}$		DESIG=36
Γ_{99}	$\Sigma^+ K^*(892)^0$	[a]	$(3.5 \pm 1.0) \times 10^{-3}$		DESIG=77
Γ_{100}	$\Sigma^+ K^+ \pi^- \pi^0$		$< 1.1 \times 10^{-3}$	CL=90%	DESIG=147
Γ_{101}	$\Sigma^- K^+ \pi^+$		$(3.8 \pm 1.2) \times 10^{-4}$		DESIG=78

Doubly Cabibbo-suppressed modes

NODE=S033;CLUMP=H

Γ_{102}	$p K^+ \pi^-$	$(1.13 \pm 0.17) \times 10^{-4}$		DESIG=105

Semileptonic modes

NODE=S033;CLUMP=E

Γ_{103}	$\Lambda e^+ \nu_e$	(3.56 ± 0.13) %		DESIG=67
Γ_{104}	$\Lambda \pi^+ \pi^- e^+ \nu_e$	$< 3.9 \times 10^{-4}$	CL=90%	DESIG=145
Γ_{105}	$p K^- e^+ \nu_e$	$(8.8 \pm 1.8) \times 10^{-4}$		DESIG=133
Γ_{106}	$p K^0_S \pi^- e^+ \nu_e$	$< 3.3 \times 10^{-4}$	CL=90%	DESIG=146
Γ_{107}	$\Lambda(1520) e^+ \nu_e$	$(1.0 \pm 0.5) \times 10^{-3}$		DESIG=134
Γ_{108}	$\Lambda(1405)^0 e^+ \nu_e,\ \Lambda^0 \to\ p K^-$	$(4.2 \pm 1.9) \times 10^{-4}$		DESIG=135
Γ_{109}	$\Lambda \mu^+ \nu_\mu$	(3.48 ± 0.17) %		DESIG=68

Inclusive modes

NODE=S033;CLUMP=C

Γ_{110}	e^+ anything	(4.06 ± 0.13) %	DESIG=12
Γ_{111}	p anything	(50 ± 16) %	DESIG=53
Γ_{112}	n anything	(32.6 ± 1.6) %	DESIG=55
Γ_{113}	Λ anything	$(38.2 {}^{+2.9}_{-2.4})$ %	DESIG=16
Γ_{114}	K^0_S anything	(9.9 ± 0.7) %	DESIG=124
Γ_{115}	3prongs	(24 ± 8) %	DESIG=82

$\Delta C = 1$ weak neutral current ($C1$) modes, or Lepton Family number (LF), or Lepton number (L), or Baryon number (B) violating modes

NODE=S033;CLUMP=F

Γ_{116}	$p e^+ e^-$	$C1$	$< 5.5 \times 10^{-6}$	CL=90%	DESIG=108
Γ_{117}	$p \mu^+ \mu^-$ non-resonant	$C1$	$< 2.9 \times 10^{-8}$	CL=90%	DESIG=60
Γ_{118}	$p e^+ \mu^-$	LF	$< 9.9 \times 10^{-6}$	CL=90%	DESIG=109
Γ_{119}	$p e^- \mu^+$	LF	$< 1.9 \times 10^{-5}$	CL=90%	DESIG=110
Γ_{120}	$\overline{p} 2e^+$	L,B	$< 2.7 \times 10^{-6}$	CL=90%	DESIG=111
Γ_{121}	$\overline{p} 2\mu^+$	L,B	$< 9.4 \times 10^{-6}$	CL=90%	DESIG=112
Γ_{122}	$\overline{p} e^+ \mu^+$	L,B	$< 1.6 \times 10^{-5}$	CL=90%	DESIG=113
Γ_{123}	$\Sigma^- \mu^+ \mu^+$	L	$< 7.0 \times 10^{-4}$	CL=90%	DESIG=61

Radiative modes

NODE=S033;CLUMP=J

Γ_{124}	$\Sigma^+ \gamma$	$< 2.5 \times 10^{-4}$	CL=90%	DESIG=142

Exotic modes

NODE=S033;CLUMP=I

Γ_{125}	$p \gamma_D$	[b]	$< 8.0 \times 10^{-5}$	CL=90%	DESIG=141

[a] This branching fraction includes all the decay modes of the final-state resonance. LINKAGE=SAD

[b] Here γ_D stands for a dark photon. LINKAGE=DPT

FIT INFORMATION

An overall fit to 55 branching ratios uses 85 measurements to determine 26 parameters. The overall fit has a $\chi^2 = 58.8$ for 59 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\left\langle\delta x_i \delta x_j\right\rangle/(\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i/\Gamma_{\rm total}$.

x_{3}	41									
x_{17}	36	42								
x_{23}	65	27	23							
x_{24}	32	52	26	21						
x_{26}	38	46	27	25	51					
x_{34}	18	43	18	12	23	20				
x_{35}	7	18	7	5	9	8	8			
x_{36}	11	27	12	7	14	13	12	5		
x_{45}	12	30	13	8	16	14	13	5	20	
x_{50}	41	44	27	27	25	28	19	8	12	13
x_{52}	36	38	26	23	23	25	16	7	10	12
x_{56}	37	25	17	24	33	52	11	4	7	8
x_{63}	24	59	25	16	31	28	26	11	16	18
x_{67}	9	13	7	6	7	7	5	2	3	4
x_{69}	37	30	21	24	20	27	13	5	8	9
x_{71}	29	24	20	19	13	17	11	4	7	7
x_{74}	38	80	36	25	48	49	35	14	22	24
x_{76}	3	7	3	2	3	3	3	1	2	2
x_{79}	8	10	5	5	8	11	4	2	3	3
x_{80}	12	23	11	8	16	20	10	4	6	7
x_{82}	17	36	17	11	22	22	16	6	10	11
x_{84}	14	29	13	9	17	18	12	5	8	9
x_{87}	5	11	5	3	6	5	5	2	3	3
x_{88}	18	23	13	12	13	13	10	4	6	7
x_{90}	1	4	2	1	2	2	2	1	1	1
	x_{1}	x_{3}	x_{17}	x_{23}	x_{24}	x_{26}	x_{34}	x_{35}	x_{36}	x_{45}

x_{52}	48									
x_{56}	36	32								
x_{63}	26	23	15							
x_{67}	18	9	7	8						
x_{69}	58	41	35	18	10					
x_{71}	20	23	13	14	4	16				
x_{74}	37	34	29	48	10	27	22			
x_{76}	3	2	2	4	1	2	2	5		
x_{79}	8	7	17	6	2	7	3	9	1	
x_{80}	10	10	13	14	3	8	8	22	1	3
x_{82}	17	15	13	22	5	12	10	45	2	4
x_{84}	13	12	10	17	4	9	8	36	2	3
x_{87}	5	4	3	7	1	3	3	9	1	1
x_{88}	39	20	15	13	7	23	9	19	1	4
x_{90}	2	1	1	2	0	1	1	3	0	0
	x_{50}	x_{52}	x_{56}	x_{63}	x_{67}	x_{69}	x_{71}	x_{74}	x_{76}	x_{79}

x_{82}	10				
x_{84}	8	16			
x_{87}	3	4	3		
x_{88}	5	9	7	3	
x_{90}	1	1	1	0	1
	x_{80}	x_{82}	x_{84}	x_{87}	x_{88}

Λ_c^+ BRANCHING RATIOS

NODE=S033220

A few really obsolete results have been omitted.

NODE=S033220

Hadronic modes with a p: $S = -1$ final states

NODE=S033305

$\Gamma(pK_S^0)/\Gamma_{total}$ — Γ_1/Γ

NODE=S033S02
NODE=S033S02

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.61±0.07 OUR FIT Error includes scale factor of 1.1.					
1.52±0.08±0.03	1243	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c \overline{\Lambda}_c$, 4.599 GeV

$\Gamma(pK_L^0)/\Gamma_{total}$ — Γ_2/Γ

NODE=S033P75
NODE=S033P75

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.67±0.06±0.04	1.6k	[1] ABLIKIM	24CQ	BES3	e^+e^- at 4.600–4.699 GeV

[1] Comparing with the PDG 22 value B($\Lambda_c^+ \to pK_S^0$) = $(1.59 \pm 0.07) \times 10^{-2}$, ABLIKIM 24CQ notes the $K_S^0 - K_L^0$ splitting to be -0.025 ± 0.031 in these modes.

NODE=S033P75;LINKAGE=A

$\Gamma(pK_S^0)/\Gamma(pK^-\pi^+)$ — Γ_1/Γ_3

NODE=S033R5

Measurements given as a $\overline{K}^0$ ratio have been divided by 2 to convert to a K_S^0 ratio.

NODE=S033R5
NODE=S033R5

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.254±0.011 OUR FIT Error includes scale factor of 1.3.					
0.234±0.020 OUR AVERAGE					
0.23 ±0.01 ±0.02	1025	ALAM	98	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.22 ±0.04 ±0.03	133	AVERY	91	CLEO	e^+e^- 10.5 GeV
0.28 ±0.09 ±0.07	45	ANJOS	90	E691	γBe 70–260 GeV
0.31 ±0.08 ±0.02	73	ALBRECHT	88C	ARG	e^+e^- 10 GeV

$\Gamma(pK^-\pi^+)/\Gamma_{total}$ — Γ_3/Γ

NODE=S033R1
NODE=S033R1

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
6.35±0.25 OUR FIT Error includes scale factor of 1.3.					
6.3 ±0.5 OUR AVERAGE Error includes scale factor of 2.0.					
5.84±0.27±0.23	6.3k	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c \overline{\Lambda}_c$, 4.599 GeV
$6.84 \pm 0.24 {}^{+0.21}_{-0.27}$	1.4k	[1] ZUPANC	14	BELL	$e^+e^- \to D^{(*)-}\overline{p}\pi^+$ recoil
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.0 ±1.3		[2] PDG	02		See footnote

[1] This ZUPANC 14 value is the FIRST-EVER model-independent measurement of a Λ_c^+ branching fraction.

NODE=S033R1;LINKAGE=D

[2] See the note by P. Burchat, "Λ_c^+ Branching Fractions," in any edition of the Review from 2002 through 2014 for how this value was obtained. It is now obsolete.

NODE=S033R1;LINKAGE=PD

$\Gamma(p\overline{K}_0^*(700)^0)/\Gamma(pK^-\pi^+)$ — Γ_4/Γ_3

NODE=S033P57
NODE=S033P57

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
3.02±0.16±0.18±0.92	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model.

NODE=S033P57;LINKAGE=A

$\Gamma(p\overline{K}^*(892)^0)/\Gamma(pK^-\pi^+)$ — Γ_5/Γ_3

NODE=S033R2

Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

NODE=S033R2
NODE=S033R2

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
22.3 ± 0.7 OUR AVERAGE					
22.14± 0.23±0.04±0.64		[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV
29 ± 4 ±3		[2] AITALA	00	E791	$\pi^- N$, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$35 \; {}^{+6}_{-7} \; \pm 3$	39	BOZEK	93	NA32	π^- Cu 230 GeV
35 ±11		BARLAG	90D	NA32	See BOZEK 93
42 ±24	12	BASILE	81B	CNTR	$pp \to \Lambda_c^+ e^- X$

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033R2;LINKAGE=C

[2] AITALA 00 makes a coherent 5-dimensional amplitude analysis of 946 ± 38 $\Lambda_c^+ \rightarrow pK^-\pi^+$ decays. NODE=S033R2;LINKAGE=AT

$\Gamma(p\overline{K}_0^*(1430))/\Gamma(pK^-\pi^+)$ Γ_6/Γ_3

NODE=S033P55
NODE=S033P55

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
14.7±0.6±0.1±2.7	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033P55;LINKAGE=A

$\Gamma(\Delta(1232)^{++}K^-)/\Gamma(pK^-\pi^+)$ Γ_7/Γ_3

NODE=S033R3
NODE=S033R3

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
28.2 ± 0.8 OUR AVERAGE					
28.60± 0.29±0.16±0.76		[1] AAIJ	23Z	LHCB	1.7 fb^{-1}, pp at 13 TeV
18 ± 3 ±3		[2] AITALA	00	E791	$\pi^- N$, 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
12 $^{+4}_{-5}$ ±5	14	BOZEK	93	NA32	π^- Cu 230 GeV
40 ±17	17	BASILE	81B	CNTR	$pp \rightarrow \Lambda_c^+ e^- X$

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033R3;LINKAGE=A

[2] AITALA 00 makes a coherent 5-dimensional amplitude analysis of 946 ± 38 $\Lambda_c^+ \rightarrow pK^-\pi^+$ decays. NODE=S033R3;LINKAGE=AT

$\Gamma(\Delta(1600)^{++}K^-)/\Gamma(pK^-\pi^+)$ Γ_8/Γ_3

NODE=S033P56
NODE=S033P56

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
4.5±0.3±0.1±1.5	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033P56;LINKAGE=A

$\Gamma(\Delta(1700)^{++}K^-)/\Gamma(pK^-\pi^+)$ Γ_9/Γ_3

NODE=S033P58
NODE=S033P58

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
3.90±0.20±0.07±0.94	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033P58;LINKAGE=A

$\Gamma(\Lambda(1405)^0\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{10}/Γ_3

NODE=S033P59
NODE=S033P59

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
7.7±0.2±0.2±3.0	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033P59;LINKAGE=A

$\Gamma(\Lambda(1520)\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{11}/Γ_3

NODE=S033R43

Unseen decay modes of the $\Lambda(1520)$ are included.

NODE=S033R43
NODE=S033R43

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.86± 0.09±0.03±0.23		[1] AAIJ	23Z	LHCB	1.7 fb^{-1}, pp at 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
34 ± 8 ±5		[2] AITALA	00	E791	$\pi^- N$, 500 GeV
40 $^{+18}_{-13}$ ±9	12	BOZEK	93	NA32	π^- Cu 230 GeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033R43;LINKAGE=A

[2] AITALA 00 makes a coherent 5-dimensional amplitude analysis of 946 ± 38 $\Lambda_c^+ \rightarrow pK^-\pi^+$ decays. NODE=S033R43;LINKAGE=AT

$\Gamma(\Lambda(1600)\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{12}/Γ_3

NODE=S033P60
NODE=S033P60

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
5.2±0.2±0.1±1.9	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \rightarrow pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. NODE=S033P60;LINKAGE=A

$\Gamma(\Lambda(1670)\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{13}/Γ_3

NODE=S033P61
NODE=S033P61

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.18±0.06±0.01±0.32	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model.

NODE=S033P61;LINKAGE=A

$\Gamma(\Lambda(1690)\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{14}/Γ_3

NODE=S033P62
NODE=S033P62

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.19±0.09±0.01±0.34	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model.

NODE=S033P62;LINKAGE=A

$\Gamma(\Lambda(2000)\pi^+)/\Gamma(pK^-\pi^+)$ Γ_{15}/Γ_3

NODE=S033P63
NODE=S033P63

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
9.58±0.27±0.23±0.93	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model.

NODE=S033P63;LINKAGE=A

$\Gamma(pK^-\pi^+ \text{nonresonant})/\Gamma(pK^-\pi^+)$ Γ_{16}/Γ_3

NODE=S033R44
NODE=S033R44

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.55±0.06 OUR AVERAGE					
0.55±0.06±0.04		[1] AITALA	00	E791	$\pi^- N$, 500 GeV
$0.56^{+0.07}_{-0.09}\pm0.05$	71	BOZEK	93	NA32	π^- Cu 230 GeV

[1] AITALA 00 makes a coherent 5-dimensional amplitude analysis of 946 ± 38 $\Lambda_c^+ \to pK^-\pi^+$ decays.

NODE=S033R44;LINKAGE=AT

$\Gamma(pK^0_S\pi^0)/\Gamma_{\text{total}}$ Γ_{17}/Γ

NODE=S033S03
NODE=S033S03

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.99±0.12 OUR FIT					
1.87±0.13±0.05	558	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(pK^0_L\pi^0)/\Gamma_{\text{total}}$ Γ_{18}/Γ

NODE=S033P76
NODE=S033P76

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
2.02±0.13±0.05	650	[1] ABLIKIM	24CQ	BES3	e^+e^- at 4.600–4.699 GeV

[1] Comparing with the PDG 22 value B($\Lambda_c^+ \to pK^0_S\pi^0$) = (1.96 ± 0.12) × 10^{-2}, ABLIKIM 24CQ notes the $K^0_S - K^0_L$ splitting to be 0.015 ± 0.046 in these modes.

NODE=S033P76;LINKAGE=A

$\Gamma(pK^0_S\pi^0)/\Gamma(pK^-\pi^+)$ Γ_{17}/Γ_3

NODE=S033R76

Measurements given as a $\overline{K}^0$ ratio have been divided by 2 to convert to a K^0_S ratio.

NODE=S033R76
NODE=S033R76

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.313±0.017 OUR FIT					
0.33 ±0.03 ±0.04	774	ALAM	98	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(nK^0_S\pi^+)/\Gamma_{\text{total}}$ Γ_{19}/Γ

NODE=S033P01
NODE=S033P01

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.86±0.08±0.04	556	ABLIKIM	24BA	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.82±0.23±0.11	83	[1] ABLIKIM	17H	BES3	e^+e^- at 4.6 GeV

[1] Superseded by ABLIKIM 24BA.

NODE=S033P01;LINKAGE=A

$\Gamma(nK^0_S K^+)/\Gamma_{\text{total}}$ Γ_{20}/Γ

NODE=S033P73
NODE=S033P73

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{3.9^{+1.7}_{-1.4}\pm0.3}$	9	ABLIKIM	24BA	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(nK^0_S\pi^+\pi^0)/\Gamma_{\text{total}}$ Γ_{21}/Γ

NODE=S033P71
NODE=S033P71

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.85±0.13±0.03	98	ABLIKIM	24AX	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(nK^-\pi^+\pi^+)/\Gamma_{\text{total}}$ Γ_{22}/Γ

NODE=S033P43
NODE=S033P43

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.90±0.08±0.09	810	ABLIKIM	23A	BES	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(p\overline{K}^0\eta)/\Gamma_{total}$ — Γ_{23}/Γ

NODE=S033P27

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.89 ±0.06 OUR FIT	Error includes scale factor of 1.1.				
0.828±0.168±0.056	42	[1] ABLIKIM	21H	BES3	e^+e^- at 4.6 GeV

[1] ABLIKIM 21H measures $B(\Lambda_c^+ \to pK_S^0\eta) = (0.414 \pm 0.084 \pm 0.028)\%$.

NODE=S033P27;LINKAGE=A

$\Gamma(p\overline{K}^0\eta)/\Gamma(pK_S^0)$ — Γ_{23}/Γ_1

NODE=S033P47

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.551±0.029 OUR FIT					
0.546±0.012±0.026	12.6k	[1] LI	23B	BELL	$e^+e^- \to \Upsilon(\text{nS})$

[1] LI 23B measures $B(\Lambda_c^+ \to pK_S^0\eta)/B(\Lambda_c^+ \to pK_S^0) = 0.273 \pm 0.006 \pm 0.013$.

NODE=S033P47;LINKAGE=A

$\Gamma(p\overline{K}^0\eta)/\Gamma(pK^-\pi^+)$ — Γ_{23}/Γ_3

NODE=S033P26

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.140±0.009 OUR FIT	Error includes scale factor of 1.1.				
0.25 ±0.04 ±0.04	57	AMMAR	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(pK_S^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_{24}/Γ

NODE=S033S04

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.62±0.11 OUR FIT	Error includes scale factor of 1.1.				
1.53±0.11±0.09	485	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(pK_L^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_{25}/Γ

NODE=S033P77

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.69±0.10±0.05	650	[1] ABLIKIM	24CQ	BES3	e^+e^- at 4.600–4.699 GeV

[1] Comparing with the PDG 22 value $B(\Lambda_c^+ \to pK_S^0\pi^+\pi^-) = (1.60 \pm 0.11) \times 10^{-2}$, ABLIKIM 24CQ notes the $K_S^0 - K_L^0$ splitting to be -0.027 ± 0.048 in these modes.

NODE=S033P77;LINKAGE=A

$\Gamma(pK_S^0\pi^+\pi^-)/\Gamma(pK^-\pi^+)$ — Γ_{24}/Γ_3

NODE=S033R28

Measurements given as a $\overline{K}^0$ ratio have been divided by 2 to convert to a K_S^0 ratio.

NODE=S033R28

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.256±0.014 OUR FIT	Error includes scale factor of 1.1.				
0.257±0.031 OUR AVERAGE					
0.26 ±0.02 ±0.03	985	ALAM	98	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.22 ±0.06 ±0.02	83	AVERY	91	CLEO	e^+e^- 10.5 GeV
0.49 ±0.18 ±0.04	12	BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(pK^-\pi^+\pi^0)/\Gamma_{total}$ — Γ_{26}/Γ

NODE=S033S05

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
4.52±0.28 OUR FIT	Error includes scale factor of 1.5.				
4.53±0.23±0.30	1849	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(pK^-\pi^+\pi^0)/\Gamma(pK^-\pi^+)$ — Γ_{26}/Γ_3

NODE=S033R23

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.71 ±0.04 OUR FIT	Error includes scale factor of 2.3.				
0.685±0.019 OUR AVERAGE					
0.685±0.007±0.018	242k	PAL	17	BELL	$e^+e^- \approx \Upsilon(4S), \Upsilon(5S)$
0.67 ±0.04 ±0.11	2.6k	ALAM	98	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(pK^*(892)^-\pi^+)/\Gamma(pK_S^0\pi^+\pi^-)$ — Γ_{27}/Γ_{24}

NODE=S033R16

Unseen decay modes of the $K^*(892)^-$ are included.

NODE=S033R16

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.88±0.28	17	ALEEV	94	BIS2	nN 20–70 GeV

$\Gamma(p(K^-\pi^+)_{nonresonant}\pi^0)/\Gamma(pK^-\pi^+)$ — Γ_{28}/Γ_3

NODE=S033R45

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.73±0.12±0.05	67	BOZEK	93	NA32	π^- Cu 230 GeV

$\Gamma(\Delta(1232)\overline{K}^*(892))/\Gamma_{total}$ — Γ_{29}/Γ

NODE=S033R24

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
seen	35	AMENDOLIA	87	SPEC	γ Ge-Si

$\Gamma(pK^-2\pi^+\pi^-)/\Gamma(pK^-\pi^+)$ — Γ_{30}/Γ_3

NODE=S033R32

VALUE	DOCUMENT ID		TECN	COMMENT
0.022±0.015	BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(pK^-\pi^+2\pi^0)/\Gamma(pK^-\pi^+)$ Γ_{31}/Γ_3

NODE=S033R46

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.16±0.07±0.03	15	BOZEK	93	NA32	π^- Cu 230 GeV

Hadronic modes with a p and n: $S = 0$ final states

NODE=S033310

$\Gamma(p\pi^0)/\Gamma_{total}$ Γ_{32}/Γ

NODE=S033P02

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$1.56^{+0.72}_{-0.58}\pm0.20$		9	ABLIKIM	24BB	BES3	6.0 fb^{-1}, e^+e^- at 4.600–4.843 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.7	90		ABLIKIM	17Q	BES3	e^+e^- at 4.6 GeV

$\Gamma(p\pi^0)/\Gamma(pK^-\pi^+)$ Γ_{32}/Γ_3

NODE=S033P21

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<1.273\times10^{-3}$	90	7.7k	[1] LI	21	BELL	e^+e^- at Υ(nS)

[1] Uses B($\pi^0 \to \gamma\gamma$) = 0.9882 ± 0.0003.

NODE=S033P21;LINKAGE=A

$\Gamma(n\pi^+)/\Gamma_{total}$ Γ_{33}/Γ

NODE=S033P30

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.6±1.2±0.4	50	ABLIKIM	22S	BES3	e^+e^- at 4.612–4.699 GeV

$\Gamma(p\eta)/\Gamma_{total}$ Γ_{34}/Γ

NODE=S033P03

Unseen decay modes of the η are included.

NODE=S033P03

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.49±0.08 OUR FIT Error includes scale factor of 1.1.					
1.57±0.11±0.04	507	[1] ABLIKIM	23CB	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV, $\eta\to2\gamma$, $\pi^+\pi^0\pi^-$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.63±0.31±0.11	35	ABLIKIM	24BB	BES3	6.0 fb^{-1}, e^+e^- at 4.600–4.843 GeV, $\eta\to2\gamma$
1.24±0.28±0.10	52	ABLIKIM	17Q	BES3	$\eta\to2\gamma$, $\pi^+\pi^0\pi^-$

[1] ABLIKIM 23CB report a significance of 10σ.

NODE=S033P03;LINKAGE=A

$\Gamma(p\eta)/\Gamma(pK^-\pi^+)$ Γ_{34}/Γ_3

NODE=S033P20

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
2.34 ±0.12 OUR FIT					
2.258±0.077±0.122	7.7k	[1] LI	21	BELL	e^+e^- at Υ(nS)

[1] Uses B($\eta\to\gamma\gamma$) = 0.3941 ± 0.0020.

NODE=S033P20;LINKAGE=A

$\Gamma(p\eta)/\Gamma(p\phi)$ Γ_{34}/Γ_{45}

NODE=S033P78

VALUE	DOCUMENT ID		TECN	COMMENT
1.41±0.18 OUR FIT				
1.6 ±0.7 ±0.2	[1] AAIJ	24AI	LHCB	pp at 13 TeV

[1] AAIJ 24AI reports $[\Gamma(\Lambda_c^+\to p\eta)/\Gamma(\Lambda_c^+\to p\phi)]\times[B(\eta\to\mu^+\mu^-)]$ / $[B(\phi(1020)\to\mu^+\mu^-)] = 0.032\pm0.013\pm0.004$ which we multiply or divide by our best values $B(\eta\to\mu^+\mu^-) = (5.8\pm0.8)\times10^{-6}$, $B(\phi(1020)\to\mu^+\mu^-) = (2.86\pm0.22)\times10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S033P78;LINKAGE=A

$\Gamma(p\eta')/\Gamma_{total}$ Γ_{35}/Γ

NODE=S033P36

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.9 ±0.9 OUR FIT					
$5.62^{+2.46}_{-2.04}\pm0.26$	9	[1] ABLIKIM	22AN	BES3	e^+e^- at 4.600–4.699 GeV

[1] Observed with 3.6 σ statistical significance with 4.5 fb^{-1} of e^+e^- collisions between 4.600 and 4.699 GeV. The η' is reconstructed in the two decay modes $\eta'\to\pi^+\pi^-\eta$ and $\eta'\to\pi^+\pi^-\gamma$, with signal yields $4.9^{+3.2}_{-2.6}$ and $4.3^{+2.6}_{-2.2}$ events, respectively.

NODE=S033P36;LINKAGE=A

$\Gamma(p\eta')/\Gamma(pK^-\pi^+)$ Γ_{35}/Γ_3

NODE=S033P29

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
7.8 ±1.4 OUR FIT				
7.54±1.32±0.73	LI	22B	BELL	e^+e^- at Υ(nS)

$\Gamma(p\omega(782)^0)/\Gamma_{total}$ — Γ_{36}/Γ

NODE=S033P12

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
8.9±1.1 OUR FIT Error includes scale factor of 1.2.					
11.1±2.0±0.7	234	[1] ABLIKIM	23CB	BES3	$\omega \to \pi^+\pi^-\pi^0$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
9.4±3.2±2.2	13	AAIJ	18N	LHCB	Seen in $\Lambda_c^+ \to p\mu^+\mu^-$

[1] ABLIKIM 23CB report a significance of 5.7σ.

NODE=S033P12;LINKAGE=A

$\Gamma(p\omega(782)^0)/\Gamma(pK^-\pi^+)$ — Γ_{36}/Γ_3

NODE=S033P28

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.41±0.16 OUR FIT Error includes scale factor of 1.2.					
1.32±0.12±0.10	1.8k	[1] LI	21E	BELL	e^+e^- at Υ(nS)

[1] LI 21E reconstructs the $\omega(782)$ via $\omega \to \pi^+\pi^-\pi^0$ and $\pi^0 \to \gamma\gamma$.

NODE=S033P28;LINKAGE=A

$\Gamma(p\omega(782)^0)/\Gamma(p\phi)$ — Γ_{36}/Γ_{45}

NODE=S033P79

VALUE	DOCUMENT ID		TECN	COMMENT
0.85±0.13 OUR FIT Error includes scale factor of 1.1.				
0.93±0.14±0.24	[1] AAIJ	24AI	LHCB	pp at 13 TeV

[1] AAIJ 24AI reports $[\Gamma(\Lambda_c^+ \to p\omega(782)^0)/\Gamma(\Lambda_c^+ \to p\phi)] \times [B(\omega(782) \to \mu^+\mu^-)] / [B(\phi(1020) \to \mu^+\mu^-)] = 0.240 \pm 0.030 \pm 0.018$ which we multiply or divide by our best values $B(\omega(782) \to \mu^+\mu^-) = (7.4 \pm 1.8) \times 10^{-5}$, $B(\phi(1020) \to \mu^+\mu^-) = (2.86 \pm 0.22) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S033P79;LINKAGE=A

$\Gamma(p\pi^+\pi^-)/\Gamma(pK^-\pi^+)$ — Γ_{37}/Γ_3

NODE=S033R33

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.35±0.24 OUR AVERAGE Error includes scale factor of 1.3.					
7.44±0.08±0.18	20k	AAIJ	18V	LHCB	$\Lambda_b^0 \to \Lambda_c^+\mu^- X$
6.70±0.48±0.25	495	ABLIKIM	16U	BES3	e^+e^- at 4.599 GeV
6.9 ±3.6	5	BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(pf_0(980))/\Gamma(pK^-\pi^+)$ — Γ_{38}/Γ_3

NODE=S033R34

Unseen decay modes of the $f_0(980)$ are included.

NODE=S033R34

VALUE	DOCUMENT ID		TECN	COMMENT
0.055±0.036	BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(p\rho(770)^0)/\Gamma(p\phi)$ — Γ_{39}/Γ_{45}

NODE=S033P80

VALUE	DOCUMENT ID		TECN	COMMENT
1.44±0.35±0.14	[1] AAIJ	24AI	LHCB	pp at 13 TeV

[1] AAIJ 24AI reports $[\Gamma(\Lambda_c^+ \to p\rho(770)^0)/\Gamma(\Lambda_c^+ \to p\phi)] \times [B(\rho(770) \to \mu^+\mu^-)] / [B(\phi(1020) \to \mu^+\mu^-)] = 0.229 \pm 0.051 \pm 0.022$ which we multiply or divide by our best values $B(\rho(770) \to \mu^+\mu^-) = (4.55 \pm 0.28) \times 10^{-5}$, $B(\phi(1020) \to \mu^+\mu^-) = (2.86 \pm 0.22) \times 10^{-4}$. Our first error is their experiment's error and our second error is the systematic error from using our best values.

NODE=S033P80;LINKAGE=A

$\Gamma(n\pi^+\pi^0)/\Gamma_{total}$ — Γ_{40}/Γ

NODE=S033P41

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.64±0.09±0.02	150	ABLIKIM	23A	BES	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(nK^+\pi^0)/\Gamma_{total}$ — Γ_{41}/Γ

NODE=S033P68

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.1 × 10^{-4}	90	ABLIKIM	24AW	BES3	6.1 fb^{-1} at e^+e^-, 4.60–4.84 GeV

$\Gamma(n\pi^+\pi^-\pi^+)/\Gamma_{total}$ — Γ_{42}/Γ

NODE=S033P42

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.45±0.07±0.03	120	ABLIKIM	23A	BES	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(p2\pi^+2\pi^-)/\Gamma(pK^-\pi^+)$ — Γ_{43}/Γ_3

NODE=S033R35

VALUE	DOCUMENT ID		TECN	COMMENT
0.036±0.023	BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(pK^+K^-)/\Gamma(pK^-\pi^+)$ — Γ_{44}/Γ_3

NODE=S033R36

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.70±0.04 OUR AVERAGE					
1.70±0.03±0.03	3.4k	AAIJ	18V	LHCB	$\Lambda_b^0 \to \Lambda_c^+ \mu^- X$
1.4 ±0.2 ±0.2	676	ABE	02C	BELL	$e^+e^- \approx \Upsilon(4S)$
3.9 ±0.9 ±0.7	214	ALEXANDER	96C	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
9.6 ±2.9 ±1.0	30	FRABETTI	93H	E687	γBe, $\overline{E}_\gamma$ 220 GeV
4.8 ±2.7		BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(p\phi)/\Gamma(pK^-\pi^+)$ — Γ_{45}/Γ_3

NODE=S033R37

Unseen decay modes of the ϕ are included.

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.66±0.20 OUR FIT					
1.70±0.21 OUR AVERAGE					
1.81±0.33±0.13	44	ABLIKIM	16U	BES3	e^+e^- at 4.599 GeV
1.5 ±0.2 ±0.2	345	ABE	02C	BELL	$e^+e^- \approx \Upsilon(4S)$
2.4 ±0.6 ±0.3	54	ALEXANDER	96C	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.0 ±2.7		BARLAG	90D	NA32	π^- 230 GeV

$\Gamma(pK^+K^-\text{ non-}\phi)/\Gamma(pK^-\pi^+)$ — Γ_{46}/Γ_3

NODE=S033R77

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8.4 ±1.8 OUR AVERAGE					
9.36±2.22±0.71	38	ABLIKIM	16U	BES3	e^+e^- at 4.599 GeV
7 ±2 ±2	344	ABE	02C	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(pK_S^0K_S^0)/\Gamma(pK_S^0)$ — Γ_{47}/Γ_1

NODE=S033P48

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.48±0.08±0.04	2.4k	LI	23B	BELL	$e^+e^- \to \Upsilon$(nS)

$\Gamma(p\phi\pi^0)/\Gamma(pK^-\pi^+)$ — Γ_{48}/Γ_3

NODE=S033P06

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
$1.538\pm0.641^{+0.077}_{-0.100}$	PAL	17	BELL	$e^+e^- \approx \Upsilon(4S), \Upsilon(5S)$

$\Gamma(pK^+K^-\pi^0\text{nonresonant})/\Gamma_{\text{total}}$ — Γ_{49}/Γ

NODE=S033P07

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.3\times10^{-5}$	90	PAL	17	BELL	$e^+e^- \approx \Upsilon(4S), \Upsilon(5S)$

Hadronic modes with a hyperon: $S=-1$ final states

NODE=S033315

$\Gamma(\Lambda\pi^+)/\Gamma_{\text{total}}$ — Γ_{50}/Γ

NODE=S033S06

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.31±0.05 OUR FIT Error includes scale factor of 1.1.					
1.27±0.06 OUR AVERAGE					
1.31±0.08±0.05	376	ABLIKIM	22S	BES3	e^+e^- at 4.612–4.699 GeV
1.24±0.07±0.03	706	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Lambda\pi^+)/\Gamma(pK^-\pi^+)$ — Γ_{50}/Γ_3

NODE=S033R8

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.206±0.008 OUR FIT Error includes scale factor of 1.2.					
0.204±0.019 OUR AVERAGE					
0.217±0.013±0.020	750	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma\approx$ 180 GeV
0.18 ±0.03 ±0.04		ALBRECHT	92	ARG	$e^+e^- \approx$ 10.4 GeV
0.18 ±0.03 ±0.03	87	AVERY	91	CLEO	e^+e^- 10.5 GeV

$\Gamma(\Lambda(1670)\pi^+,\ \Lambda(1670)\to\eta\Lambda)/\Gamma(pK^-\pi^+)$ — Γ_{51}/Γ_3

NODE=S033P23

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.54±0.29±0.73	9.7k	LEE	21A	BELL	$e^+e^- \approx \Upsilon$(nS)

$\Gamma(\Lambda\pi^+\pi^0)/\Gamma_{\text{total}}$ — Γ_{52}/Γ

NODE=S033S07

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
7.10±0.34 OUR FIT Error includes scale factor of 1.1.					
7.01±0.37±0.19	1497	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Lambda\pi^+\pi^0)/\Gamma(pK^-\pi^+)$ — Γ_{52}/Γ_3

NODE=S033R55

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.12±0.05 OUR FIT Error includes scale factor of 1.1.					
0.73±0.09±0.16	464	AVERY	94	CLE2	$e^+e^- \approx \Upsilon(3S), \Upsilon(4S)$

$\Gamma(\Lambda\rho^+)/\Gamma(pK^-\pi^+)$ — Γ_{53}/Γ_3

NODE=S033R58

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.95	95	AVERY	94	CLE2	$e^+e^- \approx \Upsilon(3S), \Upsilon(4S)$

$\Gamma(\Lambda\rho^+)/\Gamma(\Lambda\pi^+\pi^0)$ — Γ_{53}/Γ_{52}

NODE=S033P32

These results are fit fraction from an amplitude / partial wave analysis.

NODE=S033P32

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
57.2±4.2±4.9	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

$\Gamma(\Sigma(1385)^+\pi^0,\ \Sigma^+ \to \Lambda\pi^+)/\Gamma(\Lambda\pi^+\pi^0)$ — Γ_{54}/Γ_{52}

NODE=S033P33

These results are fit fraction from an amplitude / partial wave analysis.

NODE=S033P33

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.18±0.60±0.64	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

$\Gamma(\Sigma(1385)^0\pi^+,\ \Sigma^0 \to \Lambda\pi^0)/\Gamma(\Lambda\pi^+\pi^0)$ — Γ_{55}/Γ_{52}

NODE=S033P35

These results are fit fraction from an amplitude / partial wave analysis.

NODE=S033P35

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.92±0.72±0.80	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

$\Gamma(\Lambda\pi^-2\pi^+)/\Gamma_{total}$ — Γ_{56}/Γ

NODE=S033S08

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.67±0.26 OUR FIT Error includes scale factor of 1.4.					
3.81±0.24±0.18	609	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Lambda\pi^-2\pi^+)/\Gamma(pK^-\pi^+)$ — Γ_{56}/Γ_3

NODE=S033R11

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.58 ±0.04 OUR FIT Error includes scale factor of 1.7.					
0.522±0.032 OUR AVERAGE					
0.508±0.024±0.024	1356	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV
0.65 ±0.11 ±0.12	289	AVERY	91	CLEO	e^+e^- 10.5 GeV
0.82 ±0.29 ±0.27	44	ANJOS	90	E691	γBe 70–260 GeV
0.94 ±0.41 ±0.13	10	BARLAG	90D	NA32	π^- 230 GeV
0.61 ±0.16 ±0.04	105	ALBRECHT	88C	ARG	e^+e^- 10 GeV

$\Gamma(\Sigma(1385)^+\pi^+\pi^-,\ \Sigma^{*+} \to \Lambda\pi^+)/\Gamma(\Lambda\pi^-2\pi^+)$ — Γ_{57}/Γ_{56}

NODE=S033R94

VALUE	DOCUMENT ID		TECN	COMMENT
0.28±0.10±0.08	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Sigma(1385)^-2\pi^+,\ \Sigma^{*-} \to \Lambda\pi^-)/\Gamma(\Lambda\pi^-2\pi^+)$ — Γ_{58}/Γ_{56}

NODE=S033R95

VALUE	DOCUMENT ID		TECN	COMMENT
0.21±0.03±0.02	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Lambda\pi^+\rho^0)/\Gamma(\Lambda\pi^-2\pi^+)$ — Γ_{59}/Γ_{56}

NODE=S033R96

VALUE	DOCUMENT ID		TECN	COMMENT
0.40±0.12±0.12	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Sigma(1385)^+\rho^0,\ \Sigma^{*+} \to \Lambda\pi^+)/\Gamma(\Lambda\pi^-2\pi^+)$ — Γ_{60}/Γ_{56}

NODE=S033R97

VALUE	DOCUMENT ID		TECN	COMMENT
0.14±0.09±0.07	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Lambda\pi^-2\pi^+ \text{ nonresonant})/\Gamma(\Lambda\pi^-2\pi^+)$ — Γ_{61}/Γ_{56}

NODE=S033R98

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.3	90	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Lambda\pi^-\pi^0 2\pi^+ \text{ total})/\Gamma(pK^-\pi^+)$ — Γ_{62}/Γ_3

NODE=S033R88

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.36±0.09±0.09	50	[1] CRONIN-HEN..03	CLE3	$e^+e^- \approx \Upsilon(4S)$

[1] CRONIN-HENNESSY 03 finds this channel to be dominantly $\Lambda\eta\pi^+$ and $\Lambda\omega\pi^+$; see below.

NODE=S033R88;LINKAGE=CH

$\Gamma(\Lambda\pi^+\eta)/\Gamma_{total}$ — Γ_{63}/Γ

NODE=S033P17

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.87±0.11 OUR FIT Error includes scale factor of 1.1.					
1.84±0.21±0.15	154	ABLIKIM	19Y	BES3	e^+e^- at 4.6 GeV

$\Gamma(\Lambda\pi^+\eta)/\Gamma(pK^-\pi^+)$ — Γ_{63}/Γ_3

NODE=S033R68

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.295±0.014 OUR FIT					
0.295±0.014 OUR AVERAGE					
0.293±0.003±0.014	51k	LEE	21A	BELL	$e^+e^- \approx \Upsilon(nS)$
0.41 ±0.17 ±0.10	11	CRONIN-HEN...	03	CLE3	$e^+e^- \approx \Upsilon(4S)$
0.35 ±0.05 ±0.06	116	AMMAR	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma(1385)^+\eta)/\Gamma_{total}$ — Γ_{64}/Γ

NODE=S033P18

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.91±0.18±0.09	54	ABLIKIM	19Y	BES3	e^+e^- at 4.6 GeV

$\Gamma(\Sigma(1385)^+\eta)/\Gamma(pK^-\pi^+)$ — Γ_{64}/Γ_3

NODE=S033R70

Unseen decay modes of the $\Sigma(1385)^+$ and η are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.190±0.016 OUR AVERAGE					
0.192±0.006±0.016	29k	LEE	21A	BELL	$e^+e^- \approx \Upsilon(nS)$
0.17 ±0.04 ±0.03	54	AMMAR	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda\pi^+\omega)/\Gamma(pK^-\pi^+)$ — Γ_{65}/Γ_3

NODE=S033R90

Unseen decay modes of the ω are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.24±0.06±0.06	32	CRONIN-HEN...	03	CLE3	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda\pi^-\pi^0 2\pi^+$, no η or $\omega)/\Gamma(pK^-\pi^+)$ — Γ_{66}/Γ_3

NODE=S033R89

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.13	90	CRONIN-HEN...	03	CLE3	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda K^+\overline{K}^0)/\Gamma(pK^-\pi^+)$ — Γ_{67}/Γ_3

NODE=S033R71

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.090±0.017 OUR FIT Error includes scale factor of 2.0.					
0.131±0.020 OUR AVERAGE					
0.142±0.018±0.022	251	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV
0.12 ±0.02 ±0.02	59	AMMAR	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda K^+\overline{K}^0)/\Gamma(\Lambda\pi^+)$ — Γ_{67}/Γ_{50}

NODE=S033R03

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.44 ±0.08 OUR FIT Error includes scale factor of 2.1.					
0.395±0.026±0.036	460 ± 30	AUBERT	07U	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Xi(1690)^0 K^+, \Xi^{*0} \to \Lambda\overline{K}^0)/\Gamma(\Lambda K^+\overline{K}^0)$ — Γ_{68}/Γ_{67}

NODE=S033R85

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.28±0.07 OUR AVERAGE					
0.32±0.10±0.04	84±24	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV
0.26±0.08±0.03	93	ABE	02C	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^0\pi^+)/\Gamma_{total}$ — Γ_{69}/Γ

NODE=S033S09

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.29±0.05 OUR FIT					
1.25±0.07 OUR AVERAGE					
1.22±0.08±0.07	343	ABLIKIM	22S	BES3	e^+e^- at 4.612–4.699 GeV
1.27±0.08±0.03	522	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Sigma^0\pi^+)/\Gamma(pK^-\pi^+)$ — Γ_{69}/Γ_3

NODE=S033R38

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.202±0.009 OUR FIT Error includes scale factor of 1.2.					
0.20 ±0.04 OUR AVERAGE					
0.21 ±0.02 ±0.04	196	AVERY	94	CLE2	$e^+e^- \approx \Upsilon(3S), \Upsilon(4S)$
0.17 ±0.06 ±0.04		ALBRECHT	92	ARG	$e^+e^- \approx 10.4$ GeV

$\Gamma(\Sigma^0\pi^+)/\Gamma(\Lambda\pi^+)$ — Γ_{69}/Γ_{50}

NODE=S033R92

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.98 ±0.04 OUR FIT					
0.98 ±0.05 OUR AVERAGE					
0.977±0.015±0.051	33k	AUBERT	07U	BABR	$e^+e^- \approx \Upsilon(4S)$
1.09 ±0.11 ±0.19	750	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Sigma^0\pi^+\eta)/\Gamma(pK^-\pi^+)$ — Γ_{70}/Γ_3

NODE=S033P22

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.120±0.006±0.010	17k	LEE	21A	BELL	$e^+e^- \approx \Upsilon(nS)$

$\Gamma(\Sigma^+\pi^0)/\Gamma_{total}$ — Γ_{71}/Γ

NODE=S033S10

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.26±0.10 OUR FIT Error includes scale factor of 1.1.					
1.18±0.10±0.03	309	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Sigma^+\pi^0)/\Gamma(pK^-\pi^+)$ — Γ_{71}/Γ_3

NODE=S033R53

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.198±0.015 OUR FIT Error includes scale factor of 1.1.					
0.20 ±0.03 ±0.03	93	KUBOTA	93	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^+\eta)/\Gamma(pK^-\pi^+)$ — Γ_{72}/Γ_3

NODE=S033R69

Unseen decay modes of the η are included.

NODE=S033R69

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.11±0.03±0.02	26	AMMAR	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^+\eta)/\Gamma(\Sigma^+\pi^0)$ — Γ_{72}/Γ_{71}

NODE=S033P15

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.254±0.031 OUR AVERAGE					
0.25 ±0.03 ±0.01	700	LI	23A	BELL	e^+e^- at/near $\Upsilon(nS)$, n=1,...,5
0.35 ±0.16 ±0.02	15	[1] ABLIKIM	19X	BES3	e^+e^- at 4.6 GeV

[1] ABLIKIM 19X report evidence for the observation of the decay $\Lambda_c^+ \to \Sigma^+\eta$ at 2.5σ significance.

NODE=S033P15;LINKAGE=A

$\Gamma(\Sigma^+\eta')/\Gamma(\Sigma^+\pi^0)$ — Γ_{73}/Γ_{71}

NODE=S033P51

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.33±0.06±0.02	300	LI	23A	BELL	e^+e^- at/near $\Upsilon(nS)$, n=1,...,5

$\Gamma(\Sigma^+\eta')/\Gamma(\Sigma^+\omega)$ — Γ_{73}/Γ_{80}

NODE=S033P16

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.86±0.34±0.04	13	[1] ABLIKIM	19X	BES3	e^+e^- at 4.6 GeV

[1] ABLIKIM 19X report evidence for the observation of the decay $\Lambda_c^+ \to \Sigma^+\eta'$ at 3.2σ significance.

NODE=S033P16;LINKAGE=A

$\Gamma(\Sigma^+\pi^+\pi^-)/\Gamma_{total}$ — Γ_{74}/Γ

NODE=S033S11

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
4.54±0.20 OUR FIT Error includes scale factor of 1.2.					
4.25±0.24±0.20	1156	ABLIKIM	16	BES3	$e^+e^- \to \Lambda_c\overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Sigma^+\pi^+\pi^-)/\Gamma(pK^-\pi^+)$ — Γ_{74}/Γ_3

NODE=S033R39

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.716±0.019 OUR FIT					
0.720±0.024 OUR AVERAGE					
0.719±0.003±0.024	2.7M	BERGER	18	BELL	$e^+e^- \approx \Upsilon(4S)$
0.74 ±0.07 ±0.09	487	KUBOTA	93	CLE2	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.72 ±0.14	47 ± 9	VAZQUEZ-JA...	08	SELX	Σ^- nucleus, 600 GeV
0.54 $^{+0.18}_{-0.15}$	11	BARLAG	92	NA32	π^- Cu 230 GeV

$\Gamma(\Sigma^+\rho^0)/\Gamma(pK^-\pi^+)$ — Γ_{75}/Γ_3

NODE=S033R52

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.27	95	KUBOTA	93	CLE2	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^- 2\pi^+)/\Gamma_{total}$ — Γ_{76}/Γ

NODE=S033P04

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.87±0.18 OUR FIT					
1.81±0.17±0.09	161	ABLIKIM	17Y	BES3	$e^+ e^-$ at 4.6 GeV

$\Gamma(\Sigma^- 2\pi^+)/\Gamma(p K^- \pi^+)$ — Γ_{76}/Γ_3

NODE=S033R04

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.295±0.028 OUR FIT					
0.314±0.067	30 ± 6	VAZQUEZ-JA...	08	SELX	Σ^- nucleus, 600 GeV

$\Gamma(\Sigma^- 2\pi^+)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ — Γ_{76}/Γ_{74}

NODE=S033R64

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.41±0.04 OUR FIT					
0.53±0.15±0.07	56	FRABETTI	94E	E687	γ Be, $\overline{E}_\gamma$ 220 GeV

$\Gamma(\Sigma^0 \pi^+ \pi^0)/\Gamma(p K^- \pi^+)$ — Γ_{77}/Γ_3

NODE=S033R56

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.56 ±0.05 OUR AVERAGE	Error includes scale factor of 1.5.				
0.575±0.005±0.036	2.7M	BERGER	18	BELL	$e^+ e^- \approx \Upsilon(4S)$
0.36 ±0.09 ±0.10	117	AVERY	94	CLE2	$e^+ e^- \approx \Upsilon(3S), \Upsilon(4S)$

$\Gamma(\Sigma^+ \pi^0 \pi^0)/\Gamma(p K^- \pi^+)$ — Γ_{78}/Γ_3

NODE=S033P14

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.247±0.006±0.019	925k	BERGER	18	BELL	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^0 \pi^- 2\pi^+)/\Gamma(p K^- \pi^+)$ — Γ_{79}/Γ_3

NODE=S033R57

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.18±0.05 OUR FIT					
0.21±0.05±0.05	90	AVERY	94	CLE2	$e^+ e^- \approx \Upsilon(3S), \Upsilon(4S)$

$\Gamma(\Sigma^0 \pi^- 2\pi^+)/\Gamma(\Lambda \pi^- 2\pi^+)$ — Γ_{79}/Γ_{56}

NODE=S033R93

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.31±0.08 OUR FIT					
0.26±0.06±0.09	480	LINK	05F	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

$\Gamma(\Sigma^+ \omega)/\Gamma_{total}$ — Γ_{80}/Γ

NODE=S033S12

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.72±0.20 OUR FIT					
1.56±0.20±0.07	157	ABLIKIM	16	BES3	$e^+ e^- \rightarrow \Lambda_c \overline{\Lambda}_c$, 4.599 GeV

$\Gamma(\Sigma^+ \omega)/\Gamma(p K^- \pi^+)$ — Γ_{80}/Γ_3

NODE=S033R54

Unseen decay modes of the ω are included.

NODE=S033R54

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.270±0.030 OUR FIT					
0.54 ±0.13 ±0.06	107	KUBOTA	93	CLE2	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^- \pi^0 2\pi^+)/\Gamma_{total}$ — Γ_{81}/Γ

NODE=S033P05

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
2.11±0.33±0.14	88	ABLIKIM	17Y	BES3	$e^+ e^-$ at 4.6 GeV

$\Gamma(\Sigma^+ K^+ K^-)/\Gamma(p K^- \pi^+)$ — Γ_{82}/Γ_3

NODE=S033R40

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.057±0.005 OUR FIT					
0.070±0.011±0.011	59	AVERY	93	CLE2	$e^+ e^- \approx 10.5$ GeV

$\Gamma(\Sigma^+ K^+ K^-)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ — Γ_{82}/Γ_{74}

NODE=S033R78

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
8.0 ±0.7 OUR FIT					
7.8 ±0.7 OUR AVERAGE					
8.38±0.93±0.44	110	ABLIKIM	23BY	BES3	$e^+ e^-$ at 4.600–4.699 GeV
7.6 ±0.7 ±0.9	246	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$
7.1 ±1.1 ±1.1	103	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Sigma^+ K^+ K^- (\text{non-}\phi))/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{83}/Γ_{74}

NODE=S033P64
NODE=S033P64

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
4.38±0.79±0.21	75	[1] ABLIKIM	23BY	BES3	$e^+ e^-$ at 4.600–4.699 GeV

[1] We do not include this measurement in our average because it is highly correlated to the relative branching fractions B($\Lambda_c \to \Sigma^+ K^+ K^-$) / B($\Lambda_c \to \Sigma^+ \pi^+ \pi^-$) and B($\Lambda_c \to \Sigma^+ \phi$) / B($\Lambda_c \to \Sigma^+ \pi^+ \pi^-$) measured in the same analysis (which we do use). Although the measurements are done on the same data, ABLIKIM 23BY do not obtain exactly B($\Lambda_c \to \Sigma^+ \phi$)·B($\phi \to K^+ K^-$) / B($\Lambda_c \to \Sigma^+ \pi^+ \pi^-$) + B($\Lambda_c^+ \to \Sigma^+ K^+ K^-$ (non-ϕ)) / B($\Lambda_c \to \Sigma^+ \pi^+ \pi^-$) = B($\Lambda_c \to \Sigma^+ K^+ K^-$) / B($\Lambda_c \to \Sigma^+ \pi^+ \pi^-$).

NODE=S033P64;LINKAGE=A

$\Gamma(\Sigma^+ \phi)/\Gamma(p K^- \pi^+)$ Γ_{84}/Γ_3

NODE=S033R48

Unseen decay modes of the ϕ are included.

NODE=S033R48
NODE=S033R48

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.063±0.007 OUR FIT					
0.069±0.023±0.016	26	AVERY	93	CLE2	$e^+ e^- \approx 10.5$ GeV

$\Gamma(\Sigma^+ \phi)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{84}/Γ_{74}

NODE=S033R79

Unseen decay modes of the ϕ are included.

NODE=S033R79
NODE=S033R79

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
8.8±1.0 OUR FIT					
8.8±1.0 OUR AVERAGE					
9.2±1.8±0.7	119	ABLIKIM	23BY	BES3	$e^+ e^-$ at 4.600–4.699 GeV
8.5±1.2±1.2	129	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$
8.7±1.6±0.6	57	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Xi(1690)^0 K^+, \Xi^{*0} \to \Sigma^+ K^-)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{85}/Γ_{74}

NODE=S033R84
NODE=S033R84

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.023±0.005 OUR AVERAGE					
0.023±0.005±0.005	75	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$
0.022±0.006±0.006	34	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Sigma^+ K^+ K^- \text{nonresonant})/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{86}/Γ_{74}

NODE=S033R80
NODE=S033R80

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.018	90	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.028	90	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Xi^0 K^+)/\Gamma_{total}$ Γ_{87}/Γ

NODE=S033P10
NODE=S033P10

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.5 ±0.7 OUR FIT					
5.90±0.86±0.39	68	ABLIKIM	18Y	BES3	$e^+ e^-$ at 4.6 GeV

$\Gamma(\Xi^0 K^+ \pi^0)/\Gamma_{total}$ Γ_{89}/Γ

NODE=S033P67
NODE=S033P67

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.79±1.46±0.95	79	ABLIKIM	24AW	BES3	6.1 fb^{-1} at $e^+ e^-$, 4.60–4.84 GeV

$\Gamma(\Xi^0 K^+)/\Gamma(p K^- \pi^+)$ Γ_{87}/Γ_3

NODE=S033R49
NODE=S033R49

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.087±0.012 OUR FIT					
0.078±0.013±0.013	56	AVERY	93	CLE2	$e^+ e^- \approx 10.5$ GeV

$\Gamma(\Xi^- K^+ \pi^+)/\Gamma_{total}$ Γ_{88}/Γ

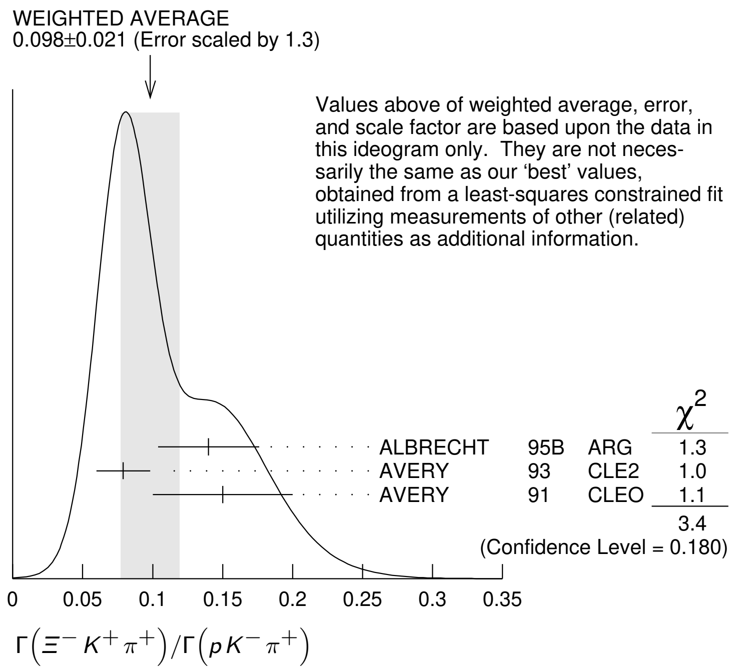
NODE=S033P74
NODE=S033P74

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.74±0.76±0.54	128	ABLIKIM	24AY	BES3	4.5 fb^{-1},$e^+ e^-$ at 4.600–4.699 GeV

$\Gamma(\Xi^- K^+ \pi^+)/\Gamma(p K^- \pi^+)$ — Γ_{88}/Γ_3

NODE=S033R29

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.099±0.008 OUR FIT					
0.098±0.021 OUR AVERAGE	Error includes scale factor of 1.3. See the ideogram below.				
0.14 ±0.03 ±0.02	34	ALBRECHT	95B	ARG	$e^+ e^- \approx 10.4$ GeV
0.079±0.013±0.014	60	AVERY	93	CLE2	$e^+ e^- \approx 10.5$ GeV
0.15 ±0.04 ±0.03	30	AVERY	91	CLEO	$e^+ e^-$ 10.5 GeV



$\Gamma(\Xi^- K^+ \pi^+)/\Gamma(\Lambda \pi^+)$ — Γ_{88}/Γ_{50}

NODE=S033R02

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.48 ±0.04 OUR FIT					
0.480±0.016±0.039	2665 ± 84	AUBERT	07U	BABR	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Xi(1530)^0 K^+)/\Gamma_{\text{total}}$ — Γ_{90}/Γ

NODE=S033P11

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.9 ±0.6 OUR FIT	Error includes scale factor of 1.1.				
5.4 ±0.6 OUR AVERAGE					
5.99±1.04±0.32		ABLIKIM	24AW	BES3	$e^+ e^-$ at 4.60–4.84 GeV, $\Xi(1530) \to \Xi^0 \pi^0$
5.03±0.77±0.20	54	ABLIKIM	24AY	BES3	$e^+ e^-$ at 4.600–4.699 GeV, $\Xi(1530) \to \Xi^- \pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.02±0.99±0.31	60	ABLIKIM	18Y	BES3	$e^+ e^-$ at 4.6 GeV

$\Gamma(\Xi(1530)^0 K^+)/\Gamma(p K^- \pi^+)$ — Γ_{90}/Γ_3

NODE=S033R50

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.077±0.010 OUR FIT	Error includes scale factor of 1.1.				
0.053±0.016±0.010	24	AVERY	93	CLE2	$e^+ e^- \approx 10.5$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.05 ±0.02 ±0.01	11	ALBRECHT	95B	ARG	$e^+ e^- \approx 10.4$ GeV

Hadronic modes with a hyperon: $S = 0$ final states

NODE=S033325

$\Gamma(\Lambda K^+)/\Gamma(\Lambda \pi^+)$ — Γ_{91}/Γ_{50}

NODE=S033R81

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.96±0.14 OUR AVERAGE					
5.05±0.13±0.09	11k	LI	23C	BELL	$e^+ e^-$ at/near Υ(nS), n=1,...,5
4.78±0.34±0.20		ABLIKIM	22BC	BES3	6.44 fb^{-1}, $e^+ e^-$ at 4.599–4.950 GeV
4.4 ±0.4 ±0.3	1.1k	AUBERT	07U	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.4 ±1.0 ±1.2	265	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda K^+ \pi^+ \pi^-)/\Gamma(\Lambda \pi^+)$ Γ_{93}/Γ_{50}

NODE=S033R6
NODE=S033R6

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.1 \times 10^{-2}$	90	AUBERT	07U	BABR	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Lambda K^+ \pi^+ \pi^-)/\Gamma(\Lambda \pi^- 2\pi^+)$ Γ_{93}/Γ_{56}

NODE=S033P65
NODE=S033P65

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
1.13±0.41±0.06	ABLIKIM	24AU	BES3	6.4 fb^{-1}, $e^+ e^-$ at 4.600–4.950 GeV

$\Gamma(\Lambda K^+ \pi^0)/\Gamma(\Lambda \pi^+ \pi^0)$ Γ_{92}/Γ_{52}

NODE=S033P66
NODE=S033P66

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
2.09±0.39±0.07	ABLIKIM	24AU	BES3	6.4 fb^{-1}, $e^+ e^-$ at 4.600–4.950 GeV

$\Gamma(\Lambda K^+ \pi^0)/\Gamma_{total}$ Γ_{92}/Γ

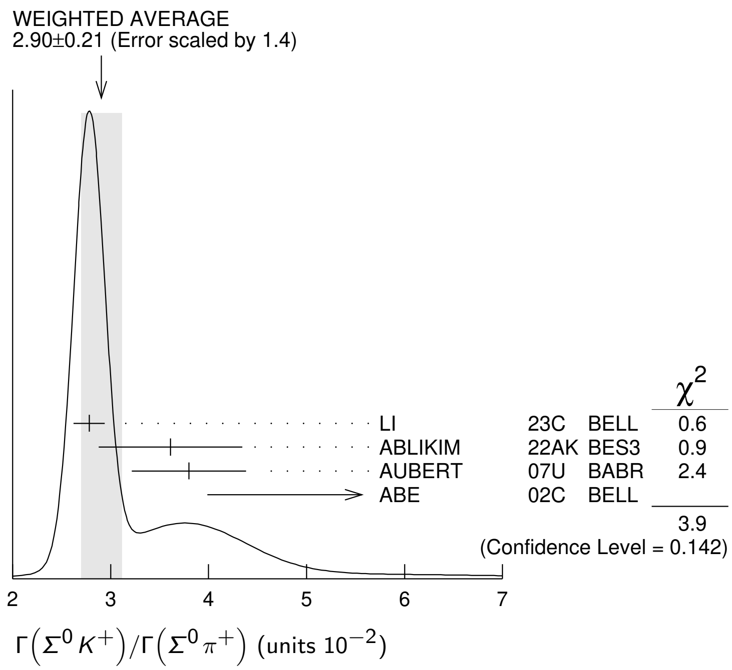
NODE=S033P70
NODE=S033P70

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.0 \times 10^{-3}$	90	ABLIKIM	24AW	BES3	6.1 fb^{-1} at $e^+ e^-$, 4.60–4.84 GeV

$\Gamma(\Sigma^0 K^+)/\Gamma(\Sigma^0 \pi^+)$ Γ_{94}/Γ_{69}

NODE=S033R82
NODE=S033R82

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
2.90±0.21 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.				
2.78±0.15±0.05	2.4k	LI	23C	BELL	$e^+ e^-$ at/near Υ(nS), n=1,...,5
3.61±0.73±0.05	43	ABLIKIM	22AK	BES3	$e^+ e^-$ at 4.178–4.226 GeV
3.8 ±0.5 ±0.3	366 ± 52	AUBERT	07U	BABR	$e^+ e^- \approx \Upsilon(4S)$
5.6 ±1.4 ±0.8	75	ABE	02C	BELL	$e^+ e^- \approx \Upsilon(4S)$



$\Gamma(\Sigma^+ K^0_S)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{95}/Γ_{74}

NODE=S033P31
NODE=S033P31

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.06±0.31±0.04	44	ABLIKIM	22AK	BES3	$e^+ e^-$ at 4.178–4.226 GeV

$\Gamma(\Sigma^0 K^+ \pi^0)/\Gamma_{total}$ Γ_{97}/Γ

NODE=S033P69
NODE=S033P69

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.8 \times 10^{-3}$	90	ABLIKIM	24AW	BES3	6.1 fb^{-1} at $e^+ e^-$, 4.60–4.84 GeV

$\Gamma(\Sigma^0 K^+ \pi^+ \pi^-)/\Gamma(\Sigma^0 \pi^+)$ Γ_{96}/Γ_{69}

NODE=S033R01
NODE=S033R01

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.0 \times 10^{-2}$	90	AUBERT	07U	BABR	$e^+ e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^+ K^+ \pi^-)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{98}/Γ_{74}

NODE=S033R83
NODE=S033R83

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.5 ±0.5 OUR AVERAGE					
4.44±0.52±0.25	224	ABLIKIM	23BY	BES3	e^+e^- at 4.600–4.699 GeV
4.7 ±1.1 ±0.8	105	ABE	02C	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\Sigma^+ K^*(892)^0)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{99}/Γ_{74}

NODE=S033R86

Unseen decay modes of the $K^*(892)^0$ are included.

NODE=S033R86
NODE=S033R86

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.078±0.018±0.013	49	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Sigma^+ K^+ \pi^- \pi^0)/\Gamma(\Sigma^+ \pi^+ \pi^-)$ Γ_{100}/Γ_{74}

NODE=S033P53
NODE=S033P53

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.5 × 10^{-2}	90	ABLIKIM	23BY	BES3	e^+e^- at 4.600–4.699 GeV

$\Gamma(\Sigma^- K^+ \pi^+)/\Gamma(\Sigma^+ K^*(892)^0)$ Γ_{101}/Γ_{99}

NODE=S033R87
NODE=S033R87

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.35	90	LINK	02G	FOCS	γ nucleus, ≈ 180 GeV

$\Gamma(\Sigma^- K^+ \pi^+)/\Gamma_{total}$ Γ_{101}/Γ

NODE=S033P72
NODE=S033P72

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8±1.2±0.2	12	ABLIKIM	24AY	BES3	4.5 fb^{-1},e^+e^- at 4.600–4.699 GeV

Doubly Cabibbo-suppressed modes

NODE=S033345

$\Gamma(pK^+\pi^-)/\Gamma(pK^-\pi^+)$ Γ_{102}/Γ_3

NODE=S033R99
NODE=S033R99

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.77±0.27 OUR AVERAGE	Error includes scale factor of 1.9.				
1.65±0.15±0.05	392	AAIJ	18V	LHCB	$\Lambda_b^0 \to \Lambda_c^+ \mu^- X$
2.35±0.27±0.21	3379	YANG	16	BELL	At or near Υs

Semileptonic modes

NODE=S033317

$\Gamma(\Lambda e^+ \nu_e)/\Gamma_{total}$ Γ_{103}/Γ

NODE=S033S13
NODE=S033S13

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.56±0.11±0.07		[1] ABLIKIM	22AT	BES3	4.5 fb^{-1} in e^+e^- at 4.600–4.699 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.63±0.38±0.20	104	[2] ABLIKIM	15Y	BES3	567 pb^{-1}, 4.599 GeV

[1] Using Lattice QCD calculations for the form factors yields $|V_{cs}| = 0.936 \pm 0.030$.

NODE=S033S13;LINKAGE=A

[2] Superseded by ABLIKIM 22AT.

NODE=S033S13;LINKAGE=B

$\Gamma(\Lambda e^+ \nu_e)/\Gamma(pK^-\pi^+)$ Γ_{103}/Γ_3

NODE=S033R73
NODE=S033R73

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.43±0.08	[1,2] BERGFELD	94	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.38±0.14	[2,3] ALBRECHT	91G	ARG	$e^+e^- \approx 10.4$ GeV

[1] BERGFELD 94 measures $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c^+ \to \Lambda e^+ \nu_e) = (4.87 \pm 0.28 \pm 0.69)$ pb.

NODE=S033R73;LINKAGE=B

[2] To extract $\Gamma(\Lambda_c^+ \to \Lambda e^+ \nu_e)/\Gamma(\Lambda_c^+ \to pK^-\pi^+)$, we use $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c \to pK^-\pi^+) = (11.2 \pm 1.3)$ pb, which is the weighted average of measurements from ARGUS (ALBRECHT 96E) and CLEO (AVERY 91).

NODE=S033R73;LINKAGE=C

[3] ALBRECHT 91G measures $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c^+ \to \Lambda e^+ \nu_e) = (4.20 \pm 1.28 \pm 0.71)$ pb.

NODE=S033R73;LINKAGE=A

$\Gamma(\Lambda \pi^+ \pi^- e^+ \nu_e)/\Gamma_{total}$ Γ_{104}/Γ

NODE=S033P49
NODE=S033P49

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.9 × 10^{-4}	90	ABLIKIM	23AB	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(pK^- e^+ \nu_e)/\Gamma_{total}$ Γ_{105}/Γ

NODE=S033P37
NODE=S033P37

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.88±0.17±0.07	ABLIKIM	22BB	BES	4.5 fb^{-1} in e^+e^- at 4.600–4.699 GeV

$\Gamma(pK^0_S\pi^- e^+\nu_e)/\Gamma_{total}$ — Γ_{106}/Γ

NODE=S033P50

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.3 × 10^{-4}	90	ABLIKIM	23AB	BES3	4.5 fb^{-1}, e^+e^- at 4.600–4.699 GeV

$\Gamma(\Lambda(1520)e^+\nu_e)/\Gamma_{total}$ — Γ_{107}/Γ

NODE=S033P38

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
1.02±0.52±0.11	[1] ABLIKIM	22BB	BES	4.5 fb^{-1} e^+e^- at 4.600–4.699 GeV

[1] ABLIKIM 22BB reports $B(\Lambda_c^+ \to \Lambda(1520)e^+\nu_e) \cdot B(\Lambda(1520) \to pK^-) = (2.3 \pm 1.2 \pm 0.2) \times 10^{-4}$, which is divided by the best value for $B(\Lambda(1520) \to pK^-)$ assuming the isospin limit $2 \cdot B(\Lambda(1520) \to pK^-) = B(\Lambda(1520) \to N\overline{K}) = 0.45 \pm 0.01$. NODE=S033P38;LINKAGE=C

$\Gamma(\Lambda(1405)^0 e^+\nu_e,\ \Lambda^0 \to pK^-)/\Gamma_{total}$ — Γ_{108}/Γ

NODE=S033P39

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
0.42±0.19±0.04	ABLIKIM	22BB	BES	4.5 fb^{-1} in e^+e^- at 4.600–4.699 GeV

$\Gamma(\Lambda\mu^+\nu_\mu)/\Gamma_{total}$ — Γ_{109}/Γ

NODE=S033R00

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.48±0.14±0.10	752	ABLIKIM	23AT	BES3	e^+e^- at 4.600–4.699 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.49±0.46±0.27	79	[1] ABLIKIM	17D	BES3	e^+e^- at 4.6 GeV

[1] Superseded by ABLIKIM 23AT. NODE=S033R00;LINKAGE=A

$\Gamma(\Lambda\mu^+\nu_\mu)/\Gamma(pK^-\pi^+)$ — Γ_{109}/Γ_3

NODE=S033R74

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.40±0.09	[1,2] BERGFELD	94	CLE2	$e^+e^- \approx \Upsilon(4S)$
0.35±0.20	[2,3] ALBRECHT	91G	ARG	$e^+e^- \approx 10.4$ GeV

[1] BERGFELD 94 measures $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c^+ \to \Lambda\mu^+\nu_\mu) = (4.43 \pm 0.51 \pm 0.64)$ pb. NODE=S033R74;LINKAGE=B

[2] To extract $\Gamma(\Lambda_c^+ \to \Lambda\mu^+\nu_\mu)/\Gamma(\Lambda_c^+ \to pK^-\pi^+)$, we use $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c \to pK^-\pi^+) = (11.2 \pm 1.3)$ pb, which is the weighted average of measurements from ARGUS (ALBRECHT 96E) and CLEO (AVERY 91). NODE=S033R74;LINKAGE=C

[3] ALBRECHT 91G measures $\sigma(e^+e^- \to \Lambda_c^+ X)\cdot B(\Lambda_c^+ \to \Lambda\mu^+\nu_\mu) = (3.91 \pm 2.02 \pm 0.90)$ pb. NODE=S033R74;LINKAGE=A

$\Gamma(\Lambda\mu^+\nu_\mu)/\Gamma(\Lambda e^+\nu_e)$ — $\Gamma_{109}/\Gamma_{103}$

NODE=S033P00

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.96±0.16±0.04	[1] ABLIKIM	17D	BES3	e^+e^- at 4.6 GeV

[1] This is the ratio of the ABLIKIM 17D $\Lambda\mu^+\nu_e$ branching fraction and the ABLIKIM 15Y $\Lambda e^+\nu_e$ branching fraction (see above), and so is not an independent measurement. NODE=S033P00;LINKAGE=A

Inclusive modes

NODE=S033320

$\Gamma(e^+\text{ anything})/\Gamma_{total}$ — Γ_{110}/Γ

NODE=S033R17

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
4.06±0.10±0.09	4692	ABLIKIM	23AK	BES3	e^+e^- at 4.6–4.698 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.95±0.34±0.09	214	[1] ABLIKIM	18AF	BES3	e^+e^- 4.6 GeV

[1] Superseded by ABLIKIM 23AK. NODE=S033R17;LINKAGE=A

$\Gamma(p\text{ anything})/\Gamma_{total}$ — Γ_{111}/Γ

NODE=S033R59

VALUE	DOCUMENT ID		TECN	COMMENT
0.50±0.08±0.14	[1] CRAWFORD	92	CLEO	e^+e^- 10.5 GeV

[1] This CRAWFORD 92 value includes protons from Λ decay. The value is model dependent, but account is taken of this in the systematic error. NODE=S033R59;LINKAGE=A

$\Gamma(n \text{ anything})/\Gamma_{\text{total}}$ Γ_{112}/Γ

NODE=S033R61

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
32.6±1.6 OUR AVERAGE					
32.4±0.7± 1.5	3105	[1] ABLIKIM	23AS	BES3	e^+e^- at 4.6–4.698 GeV
50 ±8 ±14		[2] CRAWFORD	92	CLEO	e^+e^- 10.5 GeV

[1] ABLIKIM 23AS measures the antiparticle decay $\overline{\Lambda}_c^- \to \overline{n}X$. NODE=S033R61;LINKAGE=B

[2] This CRAWFORD 92 value includes neutrons from Λ decay. The value is model dependent, but account is taken of this in the systematic error. NODE=S033R61;LINKAGE=A

$\Gamma(\Lambda \text{ anything})/\Gamma_{\text{total}}$ Γ_{113}/Γ

NODE=S033R21

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{38.2^{+2.8}_{-2.2}\pm0.9}$	700	ABLIKIM	18E	BES3	e^+e^- at 4.6 GeV

$\Gamma(K^0_S \text{ anything})/\Gamma_{\text{total}}$ Γ_{114}/Γ

NODE=S033P19

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
9.9±0.6±0.4	478	ABLIKIM	20AJ	BES3	e^+e^- at 4.6 GeV

$\Gamma(\text{3prongs})/\Gamma_{\text{total}}$ Γ_{115}/Γ

NODE=S033R91

VALUE	DOCUMENT ID	TECN	COMMENT
0.24±0.07±0.04	KAYIS-TOPAK.03	CHRS	ν_μ emulsion, $\overline{E}$=27 GeV

Rare or forbidden modes

NODE=S033340

$\Gamma(pe^+e^-)/\Gamma_{\text{total}}$ Γ_{116}/Γ

NODE=S033R05

A test for the ΔC=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{<5.5\times10^{-6}}$	90	4.0 ± 7.1	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(p\mu^+\mu^- \text{ non-resonant})/\Gamma_{\text{total}}$ Γ_{117}/Γ

NODE=S033R65

A test for the ΔC=1 weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<2.9\times10^{-8}}$	90	[1] AAIJ	24AI	LHCB	pp at 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<7.7\times10^{-8}$	90	[2] AAIJ	18N	LHCB	pp at 7,8 TeV
$<4.4\times10^{-5}$	90	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$
$<3.4\times10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV

[1] AAIJ 24AI measures $B(\Lambda_c^+ \to p\mu^+\mu^- \text{ non-res})/B(\Lambda_c^+ \to p\phi,\ \phi \to \mu^+\mu^-) < 0.09$ (0.10) at 90% (95%) CL corresponding to a limit of 2.9 (3.2) 10^{-8}. NODE=S033R65;LINKAGE=A

[2] AAIJ 18N measures ratio to $\Lambda_c^+ \to p\phi,\ \phi \to \mu^+\mu^-$. NODE=S033R65;LINKAGE=B

$\Gamma(pe^+\mu^-)/\Gamma_{\text{total}}$ Γ_{118}/Γ

NODE=S033R06

A test of lepton family-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{<9.9\times10^{-6}}$	90	−0.7±3.0	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(pe^-\mu^+)/\Gamma_{\text{total}}$ Γ_{119}/Γ

NODE=S033R07

A test of lepton family-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{<19\times10^{-6}}$	90	6.2 ± 4.9	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\overline{p}2e^+)/\Gamma_{\text{total}}$ Γ_{120}/Γ

NODE=S033R08

A test of lepton- and baryon-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{<2.7\times10^{-6}}$	90	−1.5±4.5	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\overline{p}2\mu^+)/\Gamma_{\text{total}}$ Γ_{121}/Γ

NODE=S033R09

A test of lepton- and baryon-number conservation and of lepton family-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{<9.4\times10^{-6}}$	90	0.0 ± 2.2	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\overline{p}e^+\mu^+)/\Gamma_{total}$ — Γ_{122}/Γ

A test of lepton- and baryon-number conservation and of lepton family-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<16 × 10^{-6}	90	10.1 ± 6.8	LEES	11G	BABR	$e^+e^- \approx \Upsilon(4S)$

NODE=S033S01

$\Gamma(\Sigma^-\mu^+\mu^+)/\Gamma_{total}$ — Γ_{123}/Γ

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<7.0 × 10^{-4}	90	0	KODAMA	95	E653	π^- emulsion 600 GeV

NODE=S033R66

$\Gamma(\Sigma^+\gamma)/\Gamma_{total}$ — Γ_{124}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.4 × 10^{-4}	90	ABLIKIM	23Z	BES3	e^+e^- at 4.600–4.699 GeV

NODE=S033P46

Radiative modes

NODE=S033350

$\Gamma(\Sigma^+\gamma)/\Gamma(pK^-\pi^+)$ — Γ_{124}/Γ_3

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.0 × 10^{-3}	90	LI	23	BELL	$e^+e^- \rightarrow \Upsilon(\text{nS})$

NODE=S033P45

Exotic modes

NODE=S033355

$\Gamma(p\gamma_D)/\Gamma_{total}$ — Γ_{125}/Γ

Here γ_D stands for a dark photon.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8.0 × 10^{-5}	90	ABLIKIM	22AR	BES	4.5 fb^{-1} e^+e^- at 4.600–4.699 GeV

NODE=S033P44

Λ_c^+ DECAY PARAMETERS

NODE=S033225

See the review on "Baryon Decay Parameters."

α FOR $\Lambda_c^+ \rightarrow \Lambda\pi^+$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.768±0.015 OUR AVERAGE		Error includes scale factor of 3.4.			
−0.785±0.006±0.003	26k	[1] AAIJ	24AH	LHCB	pp at 13 TeV
−0.755±0.005±0.003	264k	[2] LI	23C	BELL	$e^+e^- \approx \Upsilon(\text{nS})$, n=1,...,5
−0.80 ±0.11 ±0.02		ABLIKIM	19AX	BES3	e^+e^- at 4.6 GeV
−0.78 ±0.16 ±0.19		LINK	06A	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
−0.94 ±0.21 ±0.12	414	[3] BISHAI	95	CLE2	$e^+e^- \approx \Upsilon(4S)$
−0.96 ±0.42		ALBRECHT	92	ARG	$e^+e^- \approx$ 10.4 GeV
−1.1 ±0.4	86	AVERY	90B	CLEO	$e^+e^- \approx$ 10.6 GeV

NODE=S033A

[1] AAIJ 24AH also reports the measurements of the decay parameters β and γ, the phase difference Δ, the *CP* asymmetry R_β and the *CP* average R'_β for $\Lambda_c \rightarrow \Lambda\pi$ and its charge-conjugated decay. NODE=S033A;LINKAGE=C

[2] LI 23C obtained the value by a fit for the product $\alpha \times \alpha_\Lambda^{avg}$, and dividing by the value α_Λ^{avg} = 0.7542 ± 0.0026 reported in ABLIKIM 22AG. NODE=S033A;LINKAGE=A

[3] BISHAI 95 actually gives $\alpha = -0.94^{+0.21}_{-0.06}{}^{+0.12}_{-0.06}$, chopping the errors at the physical limit −1.0. However, for $\alpha \approx -1.0$, some experiments should *get* unphysical values ($\alpha < -1.0$), and for averaging with other measurements such values (or errors that extend below −1.0) should *not* be chopped. NODE=S033A;LINKAGE=B

α FOR $\Lambda_c^+ \rightarrow \Lambda\rho^+$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.763±0.053±0.045	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

NODE=S033A05

α FOR $\Lambda_c^+ \rightarrow \Sigma^+\pi^0$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.484±0.027 OUR AVERAGE					
−0.48 ±0.02 ±0.02	7k	LI	23A	BELL	e^+e^- at/near $\Upsilon(\text{nS})$, n=1,...,5
−0.57 ±0.10 ±0.07		ABLIKIM	19AX	BES3	e^+e^- at 4.6 GeV
−0.45 ±0.31 ±0.06	89	BISHAI	95	CLE2	$e^+e^- \approx \Upsilon(4S)$

NODE=S033ALS

α FOR $\Lambda_c^+ \to \Sigma^+\eta$

NODE=S033A08
NODE=S033A08

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.99±0.03±0.05	700	LI	23A	BELL	e^+e^- at/near Υ(nS), n=1,...,5

α FOR $\Lambda_c^+ \to \Sigma^+\eta'$

NODE=S033A09
NODE=S033A09

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.46±0.06±0.03	300	LI	23A	BELL	e^+e^- at/near Υ(nS), n=1,...,5

α FOR $\Lambda_c^+ \to \Sigma^0\pi^+$

NODE=S033A03
NODE=S033A03

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.466±0.018 OUR AVERAGE					
−0.463±0.016±0.008	105k	[1] LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5
−0.73 ±0.17 ±0.07		ABLIKIM	19AX	BES3	e^+e^- at 4.6 GeV

[1] LI 23C obtained the value by a fit for the product $\alpha \times \alpha_\Lambda^{avg}$, and dividing by the value α_Λ^{avg} = 0.7542 ± 0.0026 reported in ABLIKIM 22AG. NODE=S033A03;LINKAGE=A

α FOR $\Lambda_c^+ \to \Sigma(1385)^+\pi^0$

NODE=S033A07
NODE=S033A07

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.917±0.069±0.056	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

α FOR $\Lambda_c^+ \to \Sigma(1385)^0\pi^+$

NODE=S033A06
NODE=S033A06

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.789±0.098±0.056	8.9k	ABLIKIM	22BA	BES3	e^+e^- at 4.6–4.7 GeV

α FOR $\Lambda_c^+ \to \Lambda\ell^+\nu_\ell$

NODE=S033ALC

The experiments don't cover the complete (or same incomplete) $M(\Lambda\ell^+)$ range, but we average them together anyway. NODE=S033ALC

NODE=S033ALC

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.875±0.033 OUR AVERAGE					
−0.94 ±0.07 ±0.03	752	[1] ABLIKIM	23AT	BES3	e^+e^-, 4.600–4.699 GeV
−0.86 ±0.03 ±0.02	3201	[2] HINSON	05	CLEO	$e^+e^- \approx \Upsilon(4S)$
−0.91 ±0.42 ±0.25		[3] ALBRECHT	94B	ARG	$e^+e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.82\ ^{+0.09}_{-0.06}\ ^{+0.06}_{-0.03}$	700	[4] CRAWFORD	95	CLE2	See HINSON 05
$-0.89\ ^{+0.17}_{-0.11}\ ^{+0.09}_{-0.05}$	350	[5] BERGFELD	94	CLE2	See CRAWFORD 95

[1] ABLIKIM 23AT measures α of $\Lambda_c^+ \to \Lambda\mu^+\nu_\mu$ decay over eight q^2 bins from zero to the kinematic endpoint. The value provided here is $\langle\alpha\rangle$, averaged over q^2. The analysis uses form factors extracted from a simultaneous fit to electron and muon mode data. NODE=S033ALC;LINKAGE=D

[2] HINSON 05 measures the form-factor ratio $R \equiv f_2/f_1$ for $\Lambda_c^+ \to \Lambda e^+\nu_e$ events to be −0.31 ± 0.05 ± 0.04 and the pole mass to be 2.21 ± 0.08 ± 0.14 GeV/c^2, and from these calculates α, averaged over q^2, where $\langle q^2\rangle$ = 0.67 (GeV/c)^2. NODE=S033ALC;LINKAGE=HI

[3] ALBRECHT 94B uses Λe^+ and $\Lambda\mu^+$ events in the mass range 1.85 < $M(\Lambda\ell^+)$ < 2.20 GeV. NODE=S033ALC;LINKAGE=A

[4] CRAWFORD 95 measures the form-factor ratio $R \equiv f_2/f_1$ for $\Lambda_c^+ \to \Lambda e^+\nu_e$ events to be −0.25 ± 0.14 ± 0.08 and from this calculates α, averaged over q^2, to be the above. NODE=S033ALC;LINKAGE=C

[5] BERGFELD 94 uses Λe^+ events. NODE=S033ALC;LINKAGE=B

α FOR $\Lambda_c^+ \to pK_S^0$

NODE=S033A04
NODE=S033A04

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.754±0.008±0.006	90k	AAIJ	24AH	LHCB	pp at 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.18 ±0.43 ±0.14		ABLIKIM	19AX	BES3	e^+e^- at 4.6 GeV

α FOR $\Lambda_c^+ \to \Lambda K^+$

NODE=S033A11
NODE=S033A11

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.546±0.035 OUR AVERAGE					
−0.516±0.041±0.021	1k	[1] AAIJ	24AH	LHCB	pp at 13 TeV
−0.585±0.049±0.018	11k	[2] LI	23C	BELL	$e^+e^- \approx \Upsilon$(nS), n=1,...,5

[1] AAIJ 24AH also reports the measurements of the decay parameters β and γ, the phase difference Δ, the CP asymmetry R_β and the CP average R'_β for $\Lambda_c \to \Lambda K$ and its charge-conjugated decay. NODE=S033A11;LINKAGE=B

[2] LI 23C obtained the value by a fit for the product $\alpha \times \alpha_\Lambda^{avg}$, and dividing by the value α_Λ^{avg} = 0.7542 ± 0.0026 reported in ABLIKIM 22AG. NODE=S033A11;LINKAGE=A

α FOR $\Lambda_c^+ \to \Sigma^0 K^+$

NODE=S033A10
NODE=S033A10

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.54±0.18±0.09	2.4k	[1] LI	23C	BELL	$e^+ e^-$ at/near Υ(nS), n=1,...,5

[1] LI 23C obtained the value by a fit for the product $\alpha \times \alpha_{\Lambda}^{avg}$, and dividing by the value $\alpha_{\Lambda}^{avg} = 0.7542 \pm 0.0026$ reported in ABLIKIM 22AG.

NODE=S033A10;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(1405)\pi^+$

NODE=S033A17
NODE=S033A17

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A17

VALUE	DOCUMENT ID		TECN	COMMENT
0.58±0.05±0.01±0.28	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A17;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(1520)\pi^+$

NODE=S033A18
NODE=S033A18

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A18

VALUE	DOCUMENT ID		TECN	COMMENT
0.925±0.025±0.005±0.084	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A18;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(1600)\pi^+$

NODE=S033A19
NODE=S033A19

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A19

VALUE	DOCUMENT ID		TECN	COMMENT
0.20±0.06±0.03±0.50	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A19;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(1670)\pi^+$

NODE=S033A20
NODE=S033A20

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A20

VALUE	DOCUMENT ID		TECN	COMMENT
0.817±0.042±0.006±0.073	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A20;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(1690)\pi^+$

NODE=S033A21
NODE=S033A21

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A21

VALUE	DOCUMENT ID		TECN	COMMENT
0.958±0.020±0.006±0.027	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A21;LINKAGE=A

α FOR $\Lambda_c^+ \to \Lambda(2000)\pi^+$

NODE=S033A22
NODE=S033A22

VALUE	DOCUMENT ID		TECN	COMMENT
−0.57±0.03±0.01±0.19	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A22;LINKAGE=A

α FOR $\Lambda_c^+ \to \Delta(1232)^{++} K^-$

NODE=S033A23
NODE=S033A23

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review.

NODE=S033A23

VALUE	DOCUMENT ID		TECN	COMMENT
0.548±0.014±0.004±0.036	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ.

NODE=S033A23;LINKAGE=A

α FOR $\Lambda_c^+ \to \Delta(1600)^{++} K^-$ NODE=S033A24

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review. NODE=S033A24

VALUE	DOCUMENT ID		TECN	COMMENT
−0.50±0.05±0.01±0.17	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

NODE=S033A24

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ. NODE=S033A24;LINKAGE=A

α FOR $\Lambda_c^+ \to \Delta(1700)^{++} K^-$ NODE=S033A25

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review. NODE=S033A25

VALUE	DOCUMENT ID		TECN	COMMENT
0.216±0.036±0.011±0.075	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

NODE=S033A25

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ. NODE=S033A25;LINKAGE=A

α FOR $\Lambda_c^+ \to \overline{K}_0^*(700)^0 p$ NODE=S033A26

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review. NODE=S033A26

VALUE	DOCUMENT ID		TECN	COMMENT
−0.06±0.66±0.23±0.24	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

NODE=S033A26

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ. NODE=S033A26;LINKAGE=A

α FOR $\Lambda_c^+ \to \overline{K}_0^*(1430)^0 p$ NODE=S033A28

The polarization is defined with respect to the daughter baryon momentum in the parent rest frame. See "Baryon Decay Parameters" review. NODE=S033A28

VALUE	DOCUMENT ID		TECN	COMMENT
0.34±0.03±0.01±0.14	[1] AAIJ	23Z	LHCB	1.7fb^{-1}, pp at 13 TeV

NODE=S033A28

[1] AAIJ 23Z uses an amplitude analysis of 400k $\Lambda_c \to pK^-\pi^+$ decays, the last uncertainty is due to the amplitude model. Sign determined per authors; see also AAIJ 23AJ. NODE=S033A28;LINKAGE=A

α FOR $\Lambda_c^+ \to \Xi^0 K^+$ NODE=S033A30

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.01±0.16±0.03	378	[1] ABLIKIM	24AP	BES3	4.4 fb^{-1}, e^+e^- at 4.60–4.70 GeV

NODE=S033A30

[1] ABLIKIM 24AP report the phase shift between P- and S-wave amplitudes has two solutions, which are δ_P - $\delta_S = -1.55 \pm 0.25 \pm 0.05$ rad and $1.59 \pm 0.25 \pm 0.05$ rad. NODE=S033A30;LINKAGE=A

Λ_c^+, $\overline{\Lambda}_c^-$ CP-VIOLATING DECAY ASYMMETRIES NODE=S033240

$(\alpha+\overline{\alpha})/(\alpha-\overline{\alpha})$ in $\Lambda_c^+ \to \Lambda\pi^+$, $\overline{\Lambda}_c^- \to \overline{\Lambda}\pi^-$ NODE=S033AC1

This is zero if CP is conserved. NODE=S033AC1

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.020±0.016 OUR AVERAGE					
0.020±0.007±0.014	264k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5
−0.07 ±0.19 ±0.24		LINK	06A	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

NODE=S033AC1

$(\alpha+\overline{\alpha})/(\alpha-\overline{\alpha})$ in $\Lambda_c^+ \to \Sigma^0\pi^+$, $\overline{\Lambda}_c^- \to \overline{\Sigma}^0\pi^-$ NODE=S033A12

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.023±0.034±0.030	105k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5

NODE=S033A12

$(\alpha+\overline{\alpha})/(\alpha-\overline{\alpha})$ in $\Lambda_c^+ \to \Lambda e^+\nu_e$, $\overline{\Lambda}_c^- \to \overline{\Lambda} e^-\overline{\nu}_e$ NODE=S033ACP

This is zero if CP is conserved. NODE=S033ACP

VALUE	DOCUMENT ID		TECN	COMMENT
0.00±0.03±0.02	HINSON	05	CLEO	$e^+e^- \approx \Upsilon(4S)$

NODE=S033ACP

$(\alpha+\overline{\alpha})/(\alpha-\overline{\alpha})$ in $\Lambda_c^+ \to \Lambda K^+$, $\overline{\Lambda}_c^- \to \overline{\Lambda} K^-$ NODE=S033A13

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.023±0.086±0.071	11k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5

NODE=S033A13

$(\alpha+\overline{\alpha})/(\alpha-\overline{\alpha})$ in $\Lambda_c^+ \to \Sigma^0 K^+$, $\overline{\Lambda}_c^- \to \overline{\Sigma}^0 K^-$ NODE=S033A14

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.08±0.35±0.14	2.4k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5

NODE=S033A14

$A_{CP}(\Lambda X)$ in $\Lambda_c \to \Lambda X$, $\overline{\Lambda}_c \to \overline{\Lambda} X$

NODE=S033A00
NODE=S033A00

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$2.1^{+7.0}_{-6.6}\pm1.6$	700	ABLIKIM	18E	BES3	e^+e^- at 4.6 GeV

$A_{CP}(\Lambda K^+)$ in $\Lambda_c \to \Lambda K^+$, $\overline{\Lambda}_c \to \overline{\Lambda} K^-$

NODE=S033A15
NODE=S033A15

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.021±0.026±0.001	11k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5

$A_{CP}(\Sigma^0 K^+)$ in $\Lambda_c \to \Sigma^0 K^+$, $\overline{\Lambda}_c \to \overline{\Sigma}^0 K^-$

NODE=S033A16
NODE=S033A16

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.025±0.054±0.004	2.4k	LI	23C	BELL	e^+e^- at/near Υ(nS), n=1,...,5

$\Delta A_{CP} = A_{CP}(\Lambda_c^+ \to pK^+K^-) - A_{CP}(\Lambda_c^+ \to p\pi^+\pi^-)$

NODE=S033A01
NODE=S033A01

VALUE (%)	DOCUMENT ID		TECN	COMMENT
0.30±0.91±0.61	[1] AAIJ	18R	LHCB	pp 7, 8 TeV

[1] AAIJ 18R applies phase-space-dependent weights to the $\Lambda_c^+ \to p\pi^+\pi^-$ sample to align its kinematics with the $\Lambda_c^+ \to pK^+K^-$ sample.

NODE=S033A01;LINKAGE=A

Λ_c^+ REFERENCES

NODE=S033

We have omitted some papers that have been superseded by later experiments. The omitted papers may be found in our 1992 edition (Physical Review **D45**, 1 June, Part II) or in earlier editions.

NODE=S033

AAIJ	24AH	PRL 133 261804	R. Aaij *et al.*	(LHCb Collab.)	REFID=63074
AAIJ	24AI	PR D110 052007	R. Aaij *et al.*	(LHCb Collab.)	REFID=63078
ABLIKIM	24AP	PRL 132 031801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62705
ABLIKIM	24AU	PR D109 032003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62770
ABLIKIM	24AW	PR D109 052001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62778
ABLIKIM	24AX	PR D109 053005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62781
ABLIKIM	24AY	PR D109 L071103	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62787
ABLIKIM	24BA	PR D109 072010	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62791
ABLIKIM	24BB	PR D109 L091101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62795
ABLIKIM	24CQ	JHEP 2409 007	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63121
AAIJ	23AJ	JHEP 2307 228	R. Aaij *et al.*	(LHCb Collab.)	REFID=62369
AAIJ	23Z	PR D108 012023	R. Aaij *et al.*	(LHCb Collab.)	REFID=62302
ABLIKIM	23A	CP C47 023001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61981
ABLIKIM	23AB	PL B843 137993	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62085
ABLIKIM	23AK	PR D107 052005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62256
ABLIKIM	23AS	PR D108 L031101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62336
ABLIKIM	23AT	PR D108 L031105	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62339
ABLIKIM	23BY	JHEP 2309 125	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62528
ABLIKIM	23CB	JHEP 2311 137	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62610
ABLIKIM	23Z	PR D107 052002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62083
ABUDINEN	23A	PRL 130 071802	F. Abudinen *et al.*	(BELLE II Collab.)	REFID=62203
LI	23	PR D107 032001	Y. Li *et al.*	(BELLE Collab.)	REFID=62078
LI	23A	PR D107 032003	S.X. Li *et al.*	(BELLE Collab.)	REFID=62079
LI	23B	PR D107 032004	L.K. Li *et al.*	(BELLE Collab.)	REFID=62080
LI	23C	SCIB 68 583	L.K. Li *et al.*	(BELLE Collab.)	REFID=62184
ABLIKIM	22AG	PRL 129 131801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61879
ABLIKIM	22AK	PR D106 052003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61883
ABLIKIM	22AN	PR D106 072002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61886
ABLIKIM	22AR	PR D106 072008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61890
ABLIKIM	22AT	PRL 129 231803	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61892
ABLIKIM	22BA	JHEP 2212 033	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61905
ABLIKIM	22BB	PR D106 112010	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61906
ABLIKIM	22BC	PR D106 L111101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61907
ABLIKIM	22S	PRL 128 142001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61673
LI	22B	JHEP 2203 090	S.X. Li *et al.*	(BELLE Collab.)	REFID=61781
PDG	22	PTEP 2022 083C01	R.L. Workman *et al.*	(PDG Collab.)	REFID=61634
ABLIKIM	21H	PL B817 136327	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61107
ABLIKIM	21N	PR D103 L091101	M. Ablikim *et al.*	(BESIII Collab.) J	REFID=61120
LEE	21A	PR D103 052005	J.Y. Lee *et al.*	(BELLE Collab.)	REFID=61110
LI	21	PR D103 072004	S.X. Li *et al.*	(BELLE Collab.)	REFID=61111
LI	21E	PR D104 072008	S.X. Li *et al.*	(BELLE Collab.)	REFID=61438
ABLIKIM	20AJ	EPJ C80 935	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60916
AAIJ	19AG	PR D100 032001	R. Aaij *et al.*	(LHCb Collab.)	REFID=59957
ABLIKIM	19AX	PR D100 072004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60012
ABLIKIM	19X	CP C43 083002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59814
ABLIKIM	19Y	PR D99 032010	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59831
AAIJ	18N	PR D97 091101	R. Aaij *et al.*	(LHCb Collab.)	REFID=58932
AAIJ	18R	JHEP 1803 182	R. Aaij *et al.*	(LHCb Collab.)	REFID=59079
AAIJ	18V	JHEP 1803 043	R. Aaij *et al.*	(LHCb Collab.)	REFID=59091
ABLIKIM	18AF	PRL 121 251801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59539
ABLIKIM	18E	PRL 121 062003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58861
ABLIKIM	18Y	PL B783 200	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59034
BERGER	18	PR D98 112006	M. Berger *et al.*	(BELLE Collab.)	REFID=59497
ABLIKIM	17D	PL B767 42	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57883
ABLIKIM	17H	PRL 118 112001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57919
ABLIKIM	17Q	PR D95 111102	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57993
ABLIKIM	17Y	PL B772 388	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58234
PAL	17	PR D96 051102	B. Pal *et al.*	(BELLE Collab.)	REFID=58213
ABLIKIM	16	PRL 116 052001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57109

ABLIKIM 16U PRL 117 232002 M. Ablikim *et al.* (BESIII Collab.) REFID=57644
YANG 16 PRL 117 011801 S.B. Yang *et al.* (BELLE Collab.) REFID=57193
ABLIKIM 15Y PRL 115 221805 M. Ablikim *et al.* (BESIII Collab.) REFID=56927
ZUPANC 14 PRL 113 042002 A. Zupanc *et al.* (BELLE Collab.) REFID=55856
LEES 11G PR D84 072006 J.P. Lees *et al.* (BABAR Collab.) REFID=53808
VAZQUEZ-JA... 08 PL B666 299 E. Vazquez-Jauregui *et al.* (SELEX Collab.) REFID=52465
AUBERT 07U PR D75 052002 B. Aubert *et al.* (BABAR Collab.) REFID=51734
LINK 06A PL B634 165 J.M. Link *et al.* (FNAL FOCUS Collab.) REFID=51050
AUBERT,B 05S PR D72 052006 B. Aubert *et al.* (BABAR Collab.) REFID=50895
HINSON 05 PRL 94 191801 J.W. Hinson *et al.* (CLEO Collab.) REFID=50605
LINK 05F PL B624 22 J.M. Link *et al.* (FNAL FOCUS Collab.) REFID=50570
CRONIN-HEN... 03 PR D67 012001 D. Cronin-Hennessy *et al.* (CLEO Collab.) REFID=49261
KAYIS-TOPAK...03 PL B555 156 A. Kayis-Topaksu *et al.* (CERN CHORUS Collab.) REFID=49253
ABE 02C PL B524 33 K. Abe *et al.* (KEK BELLE Collab.) REFID=48523
LINK 02C PRL 88 161801 J.M. Link *et al.* (FNAL FOCUS Collab.) REFID=48664
LINK 02G PL B540 25 J.M. Link *et al.* (FNAL FOCUS Collab.) REFID=48774
PDG 02 PR D66 010001 K. Hagiwara *et al.* (PDG Collab.) REFID=48632
KUSHNIR... 01 PRL 86 5243 A. Kushnirenko *et al.* (FNAL SELEX Collab.) REFID=48138
MAHMOOD 01 PRL 86 2232 A.H. Mahmood *et al.* (CLEO Collab.) REFID=48080
AITALA 00 PL B471 449 E.M. Aitala *et al.* (FNAL E791 Collab.) REFID=47442
ALAM 98 PR D57 4467 M.S. Alam *et al.* (CLEO Collab.) REFID=46036
ALBRECHT 96E PRPL 276 223 H. Albrecht *et al.* (ARGUS Collab.) REFID=44953
ALEXANDER 96C PR D53 1013 J.P. Alexander *et al.* (CLEO Collab.) REFID=44657
ALBRECHT 95B PL B342 397 H. Albrecht *et al.* (ARGUS Collab.) REFID=44117
AMMAR 95 PRL 74 3534 R. Ammar *et al.* (CLEO Collab.) REFID=44200
BISHAI 95 PL B350 256 M. Bishai *et al.* (CLEO Collab.) REFID=44270
CRAWFORD 95 PRL 75 624 G. Crawford *et al.* (CLEO Collab.) REFID=44346
KODAMA 95 PL B345 85 K. Kodama *et al.* (FNAL E653 Collab.) REFID=44124
ALBRECHT 94B PL B326 320 H. Albrecht *et al.* (ARGUS Collab.) REFID=43889
ALEEV 94 PAN 57 1370 A.N. Aleev *et al.* (Serpukhov BIS-2 Collab.) REFID=44000
Translated from YF 57 1443.
AVERY 94 PL B325 257 P. Avery *et al.* (CLEO Collab.) REFID=43683
BERGFELD 94 PL B323 219 T. Bergfeld *et al.* (CLEO Collab.) REFID=43800
FRABETTI 94E PL B328 193 P.L. Frabetti *et al.* (FNAL E687 Collab.) REFID=43835
AVERY 93 PRL 71 2391 P. Avery *et al.* (CLEO Collab.) REFID=43501
BOZEK 93 PL B312 247 A. Bozek *et al.* (CERN NA32 Collab.) REFID=43442
FRABETTI 93D PRL 70 1755 P.L. Frabetti *et al.* (FNAL E687 Collab.) REFID=43271
FRABETTI 93H PL B314 477 P.L. Frabetti *et al.* (FNAL E687 Collab.) REFID=43504
KUBOTA 93 PRL 71 3255 Y. Kubota *et al.* (CLEO Collab.) REFID=43572
ALBRECHT 92 PL B274 239 H. Albrecht *et al.* (ARGUS Collab.) REFID=41914
BARLAG 92 PL B283 465 S. Barlag *et al.* (ACCMOR Collab.) REFID=42054
CRAWFORD 92 PR D45 752 G. Crawford *et al.* (CLEO Collab.) REFID=42008
JEZABEK 92 PL B286 175 M. Jezabek, K. Rybicki, R. Rylko (CRAC) REFID=42158
ALBRECHT 91G PL B269 234 H. Albrecht *et al.* (ARGUS Collab.) REFID=41742
AVERY 91 PR D43 3599 P. Avery *et al.* (CLEO Collab.) REFID=41503
ALVAREZ 90 ZPHY C47 539 M.P. Alvarez *et al.* (CERN NA14/2 Collab.) REFID=41311
ALVAREZ 90B PL B246 256 M.P. Alvarez *et al.* (CERN NA14/2 Collab.) REFID=41333
ANJOS 90 PR D41 801 J.C. Anjos *et al.* (FNAL E691 Collab.) REFID=41046
AVERY 90B PRL 65 2842 P. Avery *et al.* (CLEO Collab.) REFID=41397
BARLAG 90D ZPHY C48 29 S. Barlag *et al.* (ACCMOR Collab.) REFID=41313
FRABETTI 90 PL B251 639 P.L. Frabetti *et al.* (FNAL E687 Collab.) REFID=41441
BARLAG 89 PL B218 374 S. Barlag *et al.* (ACCMOR Collab.) REFID=40722
AGUILAR-... 88B ZPHY C40 321 M. Aguilar-Benitez *et al.* (LEBC-EHS Collab.) REFID=40699
Also PL B189 254 M. Aguilar-Benitez *et al.* (LEBC-EHS Collab.) REFID=40182
Also PL B199 462 M. Aguilar-Benitez *et al.* (LEBC-EHS Collab.) REFID=40276
Also SJNP 48 833 M. Begalli *et al.* (LEBC-EHS Collab.) REFID=40778
Translated from YAF 48 1310.
ALBRECHT 88C PL B207 109 H. Albrecht *et al.* (ARGUS Collab.) REFID=40547
ANJOS 88B PRL 60 1379 J.C. Anjos *et al.* (FNAL E691 Collab.) REFID=40471
AMENDOLIA 87 ZPHY C36 513 S.R. Amendolia *et al.* (CERN NA1 Collab.) REFID=40293
JONES 87 ZPHY C36 593 G.T. Jones *et al.* (CERN WA21 Collab.) REFID=40274
BOSETTI 82 PL 109B 234 P.C. Bosetti *et al.* (AACH3, BONN, CERN+) REFID=12128
BASILE 81B NC 62A 14 M. Basile *et al.* (CERN, BGNA, PGIA, FRAS) REFID=12122
CALICCHIO 80 PL 93B 521 M. Calicchio *et al.* (BARI, BIRM, BRUX+) REFID=12116

OTHER RELATED PAPERS

MIGLIOZZI 99 PL B462 217 P. Migliozzi *et al.* REFID=47219
DUNIETZ 98 PR D58 094010 I. Dunietz REFID=46527