NODE=S031

$D^{\pm}$ $\quad I(J^P) = \frac{1}{2}(0^-)$

$D^{\pm}$ MASS

NODE=S031M

The fit includes $D^{\pm}$, D^0, $D_s^{\pm}$, $D^{*\pm}$, D^{*0}, $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^{\pm}$ mass and mass difference measurements.

NODE=S031M

NODE=S031M

VALUE (MeV)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1869.66 ± 0.05 OUR FIT					
1869.55 ± 0.27 OUR AVERAGE					
[1869.5 ± 0.4 MeV OUR 2025 AVERAGE]					
1869.560 ± 0.288 ± 0.109	0.53k	ANASHIN	25A	KEDR	e^+e^- at $\psi(3770)$
1870.0 ± 0.5 ± 1.0	317	BARLAG	90C	ACCM	π^- Cu 230 GeV
1869.4 ± 0.6		[1] TRILLING	81	RVUE	e^+e^- 3.77 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1869.560 ± 0.288 ± 0.090	320	ANASHIN	25	KEDR	Superseded by ANASHIN 25A
1869.53 ± 0.49 ± 0.20	110	ANASHIN	10A	KEDR	Superseded by ANASHIN 25
1875 ± 10	9	ADAMOVICH	87	EMUL	Photoproduction
1860 ± 16	6	ADAMOVICH	84	EMUL	Photoproduction
1863 ± 4		DERRICK	84	HRS	e^+e^- 29 GeV
1868.4 ± 0.5		[1] SCHINDLER	81	MRK2	e^+e^- 3.77 GeV
1874 ± 5		GOLDHABER	77	MRK1	D^0, D^+ recoil spectra
1868.3 ± 0.9		[1] PERUZZI	77	LGW	e^+e^- 3.77 GeV
1874 ± 11		PICCOLO	77	MRK1	e^+e^- 4.03, 4.41 GeV
1876 ± 15	50	PERUZZI	76	MRK1	$K^{\mp}\pi^{\pm}\pi^{\pm}$

NEW

[1] PERUZZI 77 and SCHINDLER 81 errors do not include the 0.13% uncertainty in the absolute SPEAR energy calibration. TRILLING 81 uses the high precision $J/\psi(1S)$ and $\psi(2S)$ measurements of ZHOLENTZ 80 to determine this uncertainty and combines the PERUZZI 77 and SCHINDLER 81 results to obtain the value quoted.

NODE=S031M;LINKAGE=P

$D^{\pm}$ MEAN LIFE

NODE=S031T

Measurements with an error $> 100 \times 10^{-15}$ s have been omitted from the Listings.

NODE=S031T

NODE=S031T

VALUE (10^{-15} s)	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1033 ± 5 OUR AVERAGE					
1030.4 ± 4.7 ± 3.1	171k	[1] ABUDINEN	21A	BEL2	e^+e^- at $\Upsilon(4S)$
1039.4 ± 4.3 ± 7.0	110k	LINK	02F	FOCS	γ nucleus, $\approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1033.6 \pm 22.1 ^{+9.9}_{-12.7}$	3.7k	BONVICINI	99	CLEO	$e^+e^- \approx \Upsilon(4S)$
1048 ± 15 ± 11	9k	FRABETTI	94D	E687	$D^+ \to K^-\pi^+\pi^+$
1075 ± 40 ± 18	2.4k	FRABETTI	91	E687	γ Be, $D^+ \to K^-\pi^+\pi^+$
1030 ± 80 ± 60	200	ALVAREZ	90	NA14	γ, $D^+ \to K^-\pi^+\pi^+$
$1050 ^{+77}_{-72}$	317	[2] BARLAG	90C	ACCM	π^- Cu 230 GeV
1050 ± 80 ± 70	363	ALBRECHT	88I	ARG	e^+e^- 10 GeV
1090 ± 30 ± 25	2.9k	RAAB	88	E691	Photoproduction

[1] ABUDINEN 21A determines the lifetime ratio $\tau(D^+)/\tau(D^0) = 2.510 \pm 0.013 \pm 0.007$.

NODE=S031T;LINKAGE=I

[2] BARLAG 90C estimates the systematic error to be negligible.

NODE=S031T;LINKAGE=BL

D^+ DECAY MODES

NODE=S031215;NODE=S031

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as $\overline{K}^0$ modes. Nearly always it is a K_S^0 that is measured, and interference between Cabibbo-allowed and doubly Cabibbo-suppressed modes can invalidate the assumption that $2\,\Gamma(K_S^0) = \Gamma(\overline{K}^0)$.

NODE=S031

Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level

Inclusive modes

NODE=S031;CLUMP=A

Γ_1	e^+ semileptonic	(16.07 ± 0.30) %		DESIG=7
Γ_2	μ^+ anything	(17.6 ± 3.2) %		DESIG=22
Γ_3	K^- anything	(25.7 ± 1.4) %		DESIG=8
Γ_4	K^0_S anything	(33.1 ± 0.4) %		DESIG=9
Γ_5	K^+ anything	(5.9 ± 0.8) %		DESIG=10
Γ_6	$K^*(892)^-$ anything	(6 ± 5) %		DESIG=248
Γ_7	$\overline{K}^*(892)^0$ anything	(23 ± 5) %		DESIG=244
Γ_8	$K^*(892)^0$ anything	< 6.6 %	CL=90%	DESIG=245
Γ_9	η anything	(6.3 ± 0.7) %		DESIG=21
Γ_{10}	η' anything	(1.04 ± 0.18) %		DESIG=250
Γ_{11}	ϕ anything	(1.12 ± 0.04) %		DESIG=219
Γ_{12}	$\pi^+\pi^+\pi^-$ anything	(15.25 ± 0.20) %		DESIG=363

Leptonic and semileptonic modes

NODE=S031;CLUMP=B

Γ_{13}	$e^+\nu_e$	$< 9.7 \times 10^{-7}$	CL=90%	DESIG=6
Γ_{14}	$\gamma e^+\nu_e$	$< 1.2 \times 10^{-5}$	CL=90%	DESIG=281
Γ_{15}	$\mu^+\nu_\mu$	$(4.02 \pm 0.09) \times 10^{-4}$		DESIG=20
Γ_{16}	$\tau^+\nu_\tau$	$(9.9 \pm 1.2) \times 10^{-4}$		DESIG=247
Γ_{17}	$\overline{K}^0 e^+\nu_e$	(8.81 ± 0.07) %		DESIG=71
Γ_{18}	$\overline{K}^0 \mu^+\nu_\mu$	(8.68 ± 0.10) %		DESIG=49
Γ_{19}	$K^0_S\pi^0 e^+\nu_e$	$(9.43 \pm 0.16) \times 10^{-3}$		DESIG=377
Γ_{20}	$(K^0_S\pi^0)_{S-wave}\, e^+\nu_e$	$(6.03 \pm 0.23) \times 10^{-4}$		DESIG=385
Γ_{21}	$\overline{K}^*(892)^0 e^+\nu_e$, $\overline{K}^{*0} \to K^0_S\pi^0$	$(8.82 \pm 0.15) \times 10^{-3}$		DESIG=386
Γ_{22}	$K^-\pi^+ e^+\nu_e$	(4.00 ± 0.17) %	S=3.1	DESIG=34
Γ_{23}	$\overline{K}^*(892)^0 e^+\nu_e$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.75 ± 0.16) %		DESIG=81
Γ_{24}	$(K^-\pi^+)_{[0.8\text{–}1.0]\text{GeV}}\, e^+\nu_e$	(3.39 ± 0.09) %		DESIG=279
Γ_{25}	$(K^-\pi^+)_{S-wave}\, e^+\nu_e$	$(2.28 \pm 0.11) \times 10^{-3}$		DESIG=270
Γ_{26}	$\overline{K}^*(1410)^0 e^+\nu_e$, $\overline{K}^*(1410)^0 \to K^-\pi^+$	$< 6 \times 10^{-3}$	CL=90%	DESIG=271
Γ_{27}	$\overline{K}^*_2(1430)^0 e^+\nu_e$, $\overline{K}^*_2(1430)^0 \to K^-\pi^+$	$< 5 \times 10^{-4}$	CL=90%	DESIG=272
Γ_{28}	$K^-\pi^+ e^+\nu_e$ nonresonant	$< 7 \times 10^{-3}$	CL=90%	DESIG=45
Γ_{29}	$\overline{K}^*(892)^0 e^+\nu_e$	(5.40 ± 0.10) %	S=1.1	DESIG=44
Γ_{30}	$K^0_S\pi^0\mu^+\nu_\mu$	$(8.96 \pm 0.19) \times 10^{-3}$		DESIG=406
Γ_{31}	$(K^0_S\pi^0)_{S-wave}\, \mu^+\nu_\mu$	$(6.4 \pm 0.7) \times 10^{-4}$		DESIG=407
Γ_{32}	$\overline{K}^*(892)^0\mu^+\nu_\mu$, $\overline{K}^{*0} \to K^0_S\pi^0$	$(8.32 \pm 0.19) \times 10^{-3}$		DESIG=408
Γ_{33}	$K^-\pi^+\mu^+\nu_\mu$	(3.62 ± 0.33) %		DESIG=184
Γ_{34}	$\overline{K}^*(892)^0\mu^+\nu_\mu$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.52 ± 0.10) %		DESIG=185;OUR EVAL;→ UNCHECKED ←
Γ_{35}	$K^-\pi^+\mu^+\nu_\mu$ nonresonant	$(1.9 \pm 0.5) \times 10^{-3}$		DESIG=186
Γ_{36}	$\overline{K}^*(892)^0\mu^+\nu_\mu$	(5.26 ± 0.15) %	S=1.1	DESIG=179
Γ_{37}	$\overline{K}_1(1270)^0 e^+\nu_e$, $\overline{K}^0_1 \to K^-\pi^+\pi^0$	$(1.23 \pm 0.08) \times 10^{-3}$	S=1.3	DESIG=314
Γ_{38}	$\overline{K}_1(1270)^0 e^+\nu_e$, $\overline{K}^0_1 \to K^0_S\pi^+\pi^-$	$(1.5\ ^{+0.5}_{-0.4}) \times 10^{-4}$		DESIG=387
Γ_{39}	$K^-\pi^+\pi^0\mu^+\nu_\mu$	$< 1.5 \times 10^{-3}$	CL=90%	DESIG=187
Γ_{40}	$\overline{K}_1(1270)^0\mu^+\nu_\mu$, $\overline{K}^0_1 \to K^-\pi^+\pi^0$	$(1.09\ ^{+0.12}_{-0.16}) \times 10^{-3}$		DESIG=393
Γ_{41}	$\overline{K}_1(1400)^0 e^+\nu_e$	$< 1.4 \times 10^{-4}$	CL=90%	DESIG=397
Γ_{42}	$\overline{K}^*_0(1430)^0\mu^+\nu_\mu$	$< 2.3 \times 10^{-4}$	CL=90%	DESIG=242
Γ_{43}	$\overline{K}^*(1680)^0\mu^+\nu_\mu$	$< 1.4 \times 10^{-3}$	CL=90%	DESIG=243
Γ_{44}	$\pi^0 e^+\nu_e$	$(3.72 \pm 0.17) \times 10^{-3}$	S=2.0	DESIG=239
Γ_{45}	$\pi^0\mu^+\nu_\mu$	$(3.50 \pm 0.15) \times 10^{-3}$		DESIG=289

Γ_{46}	$\eta e^+ \nu_e$		$(1.11 \pm 0.07) \times 10^{-3}$		DESIG=265
Γ_{47}	$\eta \mu^+ \nu_\mu$		$(1.04 \pm 0.11) \times 10^{-3}$		DESIG=317
Γ_{48}	$\pi^- \pi^+ e^+ \nu_e$		$(2.45 \pm 0.08) \times 10^{-3}$		DESIG=295
Γ_{49}	$f_0(500)^0 e^+ \nu_e$, $f_0(500)^0 \to \pi^+ \pi^-$		$(6.2 \pm 0.4) \times 10^{-4}$		DESIG=296
Γ_{50}	$\rho^0 e^+ \nu_e$		$(1.87 \pm 0.06) \times 10^{-3}$		DESIG=154
Γ_{51}	$\pi^- \pi^+ \mu^+ \nu_\mu$				DESIG=378
Γ_{52}	$f_0(500)^0 \mu^+ \nu_\mu$, $f_0^0 \to \pi^+ \pi^-$		$(7.2 \pm 1.5) \times 10^{-4}$		DESIG=379
Γ_{53}	$\rho^0 \mu^+ \nu_\mu$		$(1.64 \pm 0.16) \times 10^{-3}$		DESIG=188
Γ_{54}	$\omega e^+ \nu_e$		$(1.69 \pm 0.11) \times 10^{-3}$		DESIG=240
Γ_{55}	$\omega \mu^+ \nu_\mu$		$(1.77 \pm 0.21) \times 10^{-3}$		DESIG=322
Γ_{56}	$\eta'(958) e^+ \nu_e$		$(1.84 \pm 0.19) \times 10^{-4}$		DESIG=266
Γ_{57}	$\eta'(958) \mu^+ \nu_\mu$		$(1.92 \pm 0.29) \times 10^{-4}$		DESIG=405
Γ_{58}	$a(980)^0 e^+ \nu_e$, $a(980)^0 \to \eta \pi^0$		$(1.7 {}^{+0.8}_{-0.7}) \times 10^{-4}$		DESIG=283
Γ_{59}	$K^0_S K^0_S e^+ \nu_e$		$< 1.54 \times 10^{-5}$	CL=90%	DESIG=373
Γ_{60}	$K^0_S \eta e^+ \nu_e$		$< 2.0 \times 10^{-4}$	CL=90%	DESIG=388
Γ_{61}	$\eta \eta e^+ \nu_e$		$< 1.0 \times 10^{-4}$	CL=90%	DESIG=389
Γ_{62}	$K^+ K^- e^+ \nu_e$		$< 2.10 \times 10^{-5}$	CL=90%	DESIG=372
Γ_{63}	$b_1(1235)^0 e^+ \nu_e$, $b_1^0 \to \omega \pi^0$		$< 1.75 \times 10^{-4}$	CL=90%	DESIG=330
Γ_{64}	$\phi e^+ \nu_e$		$< 1.3 \times 10^{-5}$	CL=90%	DESIG=124
Γ_{65}	$D^0 e^+ \nu_e$		$< 1.0 \times 10^{-4}$	CL=90%	DESIG=282
	Hadronic modes with a $\overline{K}$ or $\overline{K} K \overline{K}$				NODE=S031;CLUMP=D
Γ_{66}	$K^0_S \pi^+$		(1.554 ± 0.033) %	S=1.8	DESIG=2
Γ_{67}	$K^0_L \pi^+$		(1.46 ± 0.05) %		DESIG=256
Γ_{68}	$K^- 2\pi^+$	[a]	(9.31 ± 0.14) %	S=1.4	DESIG=1
Γ_{69}	$(K^- \pi^+)_{S-\text{wave}} \pi^+$		(7.46 ± 0.16) %		DESIG=251
Γ_{70}	$\overline{K}^*_0(700)^0 \pi^+$, $\overline{K}^*_0 \to K^- \pi^+$				DESIG=230
Γ_{71}	$\overline{K}^*_0(1430)^0 \pi^+$, $\overline{K}^*_0(1430)^0 \to K^- \pi^+$	[b]	(1.24 ± 0.06) %		DESIG=191
Γ_{72}	$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K^- \pi^+$		(1.03 ± 0.11) %		DESIG=83
Γ_{73}	$\overline{K}^*(1410)^0 \pi^+$, $\overline{K}^{*0} \to K^- \pi^+$		not seen		DESIG=147;OUR EVAL;→ UNCHECKED ←
Γ_{74}	$\overline{K}^*_2(1430)^0 \pi^+$, $\overline{K}^*_2(1430)^0 \to K^- \pi^+$	[b]	$(2.2 \pm 0.7) \times 10^{-4}$		DESIG=232
Γ_{75}	$\overline{K}^*(1680)^0 \pi^+$, $\overline{K}^*(1680)^0 \to K^- \pi^+$	[b]	$(2.2 \pm 1.1) \times 10^{-4}$		DESIG=192
Γ_{76}	$K^- (2\pi^+)_{I=2}$		(1.44 ± 0.26) %		DESIG=263
Γ_{77}	$K^- 2\pi^+$ nonresonant				DESIG=28
Γ_{78}	$K^0_S \pi^+ \pi^0$	[a]	(7.31 ± 0.20) %		DESIG=12
Γ_{79}	$K^0_S \rho^+$		$(6.10 {}^{+0.60}_{-0.35})$ %		DESIG=18
Γ_{80}	$K^0_S \rho(1450)^+$, $\rho^+ \to \pi^+ \pi^0$		$(1.5 {}^{+1.2}_{-1.4}) \times 10^{-3}$		DESIG=273
Γ_{81}	$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K^0_S \pi^0$		$(2.62 \pm 0.32) \times 10^{-3}$		DESIG=82
Γ_{82}	$\overline{K}^*_0(1430)^0 \pi^+$, $\overline{K}^{*0}_0 \to K^0_S \pi^0$		$(2.7 \pm 0.9) \times 10^{-3}$		DESIG=274
Γ_{83}	$\overline{K}^*_0(1680)^0 \pi^+$, $\overline{K}^{*0}_0 \to K^0_S \pi^0$		$(10 {}^{+7}_{-10}) \times 10^{-4}$		DESIG=275
Γ_{84}	$\overline{\kappa}^0 \pi^+$, $\overline{\kappa}^0 \to K^0_S \pi^0$		$(6 {}^{+5}_{-4}) \times 10^{-3}$		DESIG=276
Γ_{85}	$K^0_S \pi^+ \pi^0$ nonresonant		$(3 \pm 4) \times 10^{-3}$		DESIG=27
Γ_{86}	$K^0_S \pi^+ \pi^0$ nonresonant and $\overline{\kappa}^0 \pi^+$		$(1.36 {}^{+0.21}_{-0.40})$ %		DESIG=277
Γ_{87}	$(K^0_S \pi^0)_{S-\text{wave}} \pi^+$		$(1.26 {}^{+0.27}_{-0.33})$ %		DESIG=278

Γ_{88}	$K^0_S \pi^+ \omega$		$(7.1 \pm 0.5) \times 10^{-3}$		DESIG=341
Γ_{89}	$K^0_S \pi^+ \eta$		(1.27 ± 0.05) %		DESIG=323
Γ_{90}	$K^0_S a_0(980)^+$, $a_0^+ \to \pi^+ \eta$		(1.33 ± 0.06) %		DESIG=390
Γ_{91}	$\overline{K}^*_0(1430)^0 \pi^+$, $\overline{K}^*_0 \to K^0_S \eta$		$(1.38 \pm 0.26) \times 10^{-3}$		DESIG=391
Γ_{92}	$K^0_S \pi^+ \eta'(958)$		$(1.90 \pm 0.21) \times 10^{-3}$		DESIG=288
Γ_{93}	$K^- 2\pi^+ \pi^0$	[c]	(6.35 ± 0.08) %		DESIG=17
Γ_{94}	$\overline{K}^*(892)^0 \rho(770)^+$, $\overline{K}^{*0} \to K^- \pi^+$, $\rho^+ \to \pi^0 \pi^+$		(4.34 ± 0.19) %		DESIG=409
Γ_{95}	$\overline{K}_1(1270)^0 \pi^+$, $\overline{K}^0_1 \to K^- \rho(770)^+$, $\rho^+ \to \pi^+ \pi^0$		$(2.41 \pm 0.27) \times 10^{-3}$		DESIG=410
Γ_{96}	$\overline{K}_1(1400)^0 \pi^+$, $\overline{K}^0_1 \to \overline{K}^*(892) \pi$, $\overline{K}^* \to K^- \pi$		$(4.64 \pm 0.24) \times 10^{-3}$		DESIG=411
Γ_{97}	$\overline{K}(1460)^0 \pi^+$, $\overline{K}(1460)^0 \to \overline{K}^*(892) \pi$, $\overline{K}^* \to K^- \pi$		$(3.24 \pm 0.23) \times 10^{-3}$		DESIG=412
Γ_{98}	$\overline{K}^*(1680)^0 \pi^+$, $\overline{K}^{*0} \to \overline{K}^*(892) \pi$, $\overline{K}^* \to K^- \pi$		$(2.4 \pm 0.6) \times 10^{-3}$		DESIG=413
Γ_{99}	$(K^- \pi^+)_{S-wave} \rho(770)^+$, $\rho^+ \to \pi^+ \pi^0$		(1.16 ± 0.06) %		DESIG=414
Γ_{100}	$\overline{K}(1460)^0 \pi^+$, $\overline{K}(1460)^0 \to K^- (\pi^+ \pi^0)_{L=1}$		$(5.5 \pm 0.6) \times 10^{-3}$		DESIG=415
Γ_{101}	$\overline{K}(1460)^0 \pi^+$, $\overline{K}(1460)^0 \to (K^- \pi)_{L=1} \pi$		$(2.2 \pm 0.4) \times 10^{-3}$		DESIG=416
Γ_{102}	$(K^- \rho(770)^+)_{L=1} \pi^+$, $\rho^+ \to \pi^+ \pi^0$		$(1.14 \pm 0.09) \times 10^{-3}$		DESIG=417
Γ_{103}	$(\overline{K}^*(892) \pi)_{L=1} \pi^+$, $\overline{K}^* \to K^- \pi$		$(5.1 \pm 0.9) \times 10^{-4}$		DESIG=418
Γ_{104}	$(\overline{K}^*(892)^0 \pi^+)_{L=1} \pi^0$, $\overline{K}^{*0} \to K^- \pi^+$		$(5.1 \pm 2.8) \times 10^{-4}$		DESIG=419
Γ_{105}	$(K^- (\pi^+ \pi^0)_{L=0})_{L=1} \pi^+$		$(5.1 \pm 1.8) \times 10^{-4}$		DESIG=420
Γ_{106}	$(K^- \pi^+)_{L=1} \rho(770)^+$, $\rho^+ \to \pi^+ \pi^0$		$(3.2 \pm 0.9) \times 10^{-4}$		DESIG=421
Γ_{107}	$K^0_S 2\pi^+ \pi^-$	[c]	(3.08 ± 0.08) %		DESIG=13
Γ_{108}	$K^0_S \pi^+ 2\pi^0$		(2.89 ± 0.09) %		DESIG=342
Γ_{109}	$K^0_S a_1(1260)^+$, $a_1^+ \to \rho(770)^+ \pi^0$		$(8.7 \pm 1.6) \times 10^{-3}$		DESIG=366
Γ_{110}	$K^0_S a_1(1260)^+$, $a_1^+ \to f_0(500) \pi^+$, $f_0 \to \pi^0 \pi^0$		$(1.0 \pm 0.6) \times 10^{-3}$		DESIG=367
Γ_{111}	$\overline{K}_1(1400)^0 \pi^+$, $\overline{K}^0_1 \to \overline{K}^*(892)^0 \pi^0$, $\overline{K}^{*0} \to K^0_S \pi^0$		$(2.3 \pm 0.4) \times 10^{-3}$		DESIG=368
Γ_{112}	$\overline{K}^*(892)^0 \rho^+$, $\overline{K}^{*0} \to K^0_S \pi^0$		$(9.7 \pm 0.9) \times 10^{-3}$		DESIG=369
Γ_{113}	$\overline{K}^*(892)^0 \pi^+ \pi^0$ non-resonant, $\overline{K}^{*0} \to K^0_S \pi^0$		$(2.6 \pm 0.7) \times 10^{-3}$		DESIG=370
Γ_{114}	$K^0_S \rho^+ \pi^0$ non-resonant		$(4.8 \pm 0.5) \times 10^{-3}$		DESIG=371
Γ_{115}	$K^- 2\pi^+ \eta$		$(1.35 \pm 0.12) \times 10^{-3}$		DESIG=325
Γ_{116}	$K^0_S \pi^+ \pi^0 \eta$		$(1.22 \pm 0.25) \times 10^{-3}$		DESIG=326
Γ_{117}	$K^- 3\pi^+ \pi^-$	[a]	$(5.7 \pm 0.5) \times 10^{-3}$	S=1.1	DESIG=14
Γ_{118}	$\overline{K}^*(892)^0 2\pi^+ \pi^-$, $\overline{K}^*(892)^0 \to K^- \pi^+$		$(1.2 \pm 0.4) \times 10^{-3}$		DESIG=57
Γ_{119}	$\overline{K}^*(892)^0 \rho^0 \pi^+$, $\overline{K}^*(892)^0 \to K^- \pi^+$		$(2.3 \pm 0.4) \times 10^{-3}$		DESIG=58
Γ_{120}	$\overline{K}^*(892)^0 a_1(1260)^+$	[d]	$(9.2 \pm 1.8) \times 10^{-3}$		DESIG=233
Γ_{121}	$\overline{K}^*(892)^0 2\pi^+ \pi^-$ no-ρ, $\overline{K}^*(892)^0 \to K^- \pi^+$				DESIG=209
Γ_{122}	$K^- \rho^0 2\pi^+$		$(1.70 \pm 0.28) \times 10^{-3}$		DESIG=206
Γ_{123}	$K^- 3\pi^+ \pi^-$ nonresonant		$(4.0 \pm 2.9) \times 10^{-4}$		DESIG=207
Γ_{124}	$K^0_S 2\pi^+ \pi^- \pi^0$		(1.53 ± 0.08) %		DESIG=343
Γ_{125}	$K^0_S \pi^+ 3\pi^0$		$(5.5 \pm 0.5) \times 10^{-3}$		DESIG=344
Γ_{126}	$K^- 2\pi^+ 2\pi^0$		$(4.95 \pm 0.32) \times 10^{-3}$		DESIG=345
Γ_{127}	$K^- 3\pi^+ \pi^- \pi^0$		$(6.6 \pm 0.8) \times 10^{-4}$		DESIG=404
Γ_{128}	$K^+ 2K^0_S$		$(2.54 \pm 0.13) \times 10^{-3}$		DESIG=59
Γ_{129}	$K^+ K^- K^0_S \pi^+$		$(2.4 \pm 0.5) \times 10^{-4}$		DESIG=227

Pionic modes

NODE=S031;CLUMP=F

Γ_{130}	$\pi^+\pi^0$		$(1.243\pm 0.033)\times 10^{-3}$		DESIG=15
Γ_{131}	$2\pi^+\pi^-$		$(3.27\pm 0.09)\times 10^{-3}$		DESIG=3
Γ_{132}	$\rho^0\pi^+$		$(8.4\pm 0.8)\times 10^{-4}$		DESIG=47
Γ_{133}	$\pi^+(\pi^+\pi^-)_{S-\text{wave}}$		$(2.01\pm 0.06)\times 10^{-3}$		DESIG=237
Γ_{134}	$\sigma\pi^+$, $\sigma\to\pi^+\pi^-$		$(1.38\pm 0.10)\times 10^{-3}$		DESIG=221
Γ_{135}	$f_0(980)\pi^+$, $f_0\to\pi^+\pi^-$		$(1.57\pm 0.32)\times 10^{-4}$		DESIG=222
Γ_{136}	$f_0(1370)\pi^+$, $f_0\to\pi^+\pi^-$		$(8\pm 4)\times 10^{-5}$		DESIG=224
Γ_{137}	$\omega\pi^+$, $\omega\to\pi^+\pi^-$		$(3.4\pm 0.5)\times 10^{-6}$		DESIG=364
Γ_{138}	$f_2(1270)\pi^+$, $f_2\to\pi^+\pi^-$		$(4.58\pm 0.28)\times 10^{-4}$		DESIG=228
Γ_{139}	$\rho(1450)^0\pi^+$, $\rho^0\to\pi^+\pi^-$		$(1.8\pm 0.5)\times 10^{-4}$		DESIG=225
Γ_{140}	$\rho(1700)^0\pi^+$, $\rho^0\to\pi^+\pi^-$		$(1.9\pm 0.5)\times 10^{-4}$		DESIG=365
Γ_{141}	$f_0(1500)\pi^+$, $f_0\to\pi^+\pi^-$		$(1.1\pm 0.4)\times 10^{-4}$		DESIG=252
Γ_{142}	$f_0(1710)\pi^+$, $f_0\to\pi^+\pi^-$		$< 5\times 10^{-5}$	CL=95%	DESIG=253
Γ_{143}	$f_0(1790)\pi^+$, $f_0\to\pi^+\pi^-$		$< 7\times 10^{-5}$	CL=95%	DESIG=254
Γ_{144}	$(\pi^+\pi^+)_{S-\text{wave}}\pi^-$		$< 1.2\times 10^{-4}$	CL=95%	DESIG=255
Γ_{145}	$2\pi^+\pi^-$ nonresonant		$< 1.1\times 10^{-4}$	CL=95%	DESIG=46
Γ_{146}	$\pi^+2\pi^0$		$(4.61\pm 0.15)\times 10^{-3}$		DESIG=246
Γ_{147}	$2\pi^+\pi^-\pi^0$		(1.165 ± 0.030) %		DESIG=50
Γ_{148}	$\pi^+3\pi^0$		$(4.17\pm 0.26)\times 10^{-3}$		DESIG=349
Γ_{149}	$\pi^+4\pi^0$		$(1.9\pm 0.4)\times 10^{-3}$		DESIG=352
Γ_{150}	$2\pi^+\pi^-2\pi^0$		(1.07 ± 0.05) %		DESIG=350
Γ_{151}	$3\pi^+2\pi^-$		$(1.64\pm 0.16)\times 10^{-3}$	S=1.1	DESIG=48
Γ_{152}	$2\pi^+\pi^-3\pi^0$		$(3.42\pm 0.35)\times 10^{-3}$		DESIG=355
Γ_{153}	$3\pi^+2\pi^-\pi^0$		$(2.34\pm 0.27)\times 10^{-3}$		DESIG=354
Γ_{154}	$\eta\pi^+$		$(3.75\pm 0.09)\times 10^{-3}$		DESIG=51
Γ_{155}	$\eta\pi^+\pi^0$		$(2.05\pm 0.35)\times 10^{-3}$	S=2.2	DESIG=257
Γ_{156}	$\rho(770)^+\eta$, $\rho^+\to\pi^+\pi^0$		$(1.9\pm 0.8)\times 10^{-4}$		DESIG=380
Γ_{157}	$a_0(980)^+\pi^0$, $a_0^+\to\pi^+\eta$		$(9.0\pm 1.9)\times 10^{-4}$		DESIG=381
Γ_{158}	$a_0(980)^0\pi^+$, $a_0^0\to\pi^0\eta$		$(3.5\pm 1.1)\times 10^{-4}$		DESIG=382
Γ_{159}	$a_2(1700)^+\pi^0$, $a_2^+\to\pi^+\eta$		$(9\pm 5)\times 10^{-5}$		DESIG=383
Γ_{160}	$a_0(1450)^+\pi^0$, $a_0^+\to\pi^+\eta$		$(1.4\pm 0.6)\times 10^{-4}$		DESIG=384
Γ_{161}	$\eta 2\pi^+\pi^-$		$(3.41\pm 0.20)\times 10^{-3}$		DESIG=327
Γ_{162}	$\eta\pi^+2\pi^0$		$(3.20\pm 0.33)\times 10^{-3}$		DESIG=328
Γ_{163}	$\eta\pi^+3\pi^0$		$(2.9\pm 0.5)\times 10^{-3}$		DESIG=353
Γ_{164}	$\eta 2\pi^+\pi^-\pi^0$		$(3.88\pm 0.34)\times 10^{-3}$		DESIG=351
Γ_{165}	$\eta\eta\pi^+$		$(2.96\pm 0.26)\times 10^{-3}$		DESIG=329
Γ_{166}	$\omega\pi^+$		$(2.8\pm 0.6)\times 10^{-4}$		DESIG=52
Γ_{167}	$\omega\pi^+\pi^0$		$(3.9\pm 0.9)\times 10^{-3}$		DESIG=331
Γ_{168}	$\eta'(958)\pi^+$		$(4.96\pm 0.18)\times 10^{-3}$		DESIG=90
Γ_{169}	$\eta'(958)\pi^+\pi^0$		$(1.6\pm 0.5)\times 10^{-3}$		DESIG=258

Hadronic modes with a $K\overline{K}$ pair

NODE=S031;CLUMP=H

Γ_{170}	$K_S^0K^+$		$(3.02\pm 0.09)\times 10^{-3}$	S=2.2	DESIG=16
Γ_{171}	$K_L^0K^+$		$(3.21\pm 0.16)\times 10^{-3}$		DESIG=299
Γ_{172}	$K_S^0K^+\pi^0$		$(5.07\pm 0.30)\times 10^{-3}$		DESIG=298
Γ_{173}	$K^*(892)^+K_S^0$, $K^{*+}\to K^+\pi^0$		$(2.89\pm 0.30)\times 10^{-3}$		DESIG=338
Γ_{174}	$\overline{K}^*(892)^0K^+$, $\overline{K}^{*0}\to K_S^0\pi^0$		$(5.2\pm 1.4)\times 10^{-4}$		DESIG=339
Γ_{175}	$K^*(892)^+K_S^0$				DESIG=197
Γ_{176}	$K_L^0K^+\pi^0$		$(5.24\pm 0.31)\times 10^{-3}$		DESIG=300
Γ_{177}	$K^+K^-\pi^+$	[a]	$(9.61\pm 0.17)\times 10^{-3}$		DESIG=4
Γ_{178}	$K^+\overline{K}^*(892)^0$, $\overline{K}^*(892)^0\to K^-\pi^+$		$(2.47\ {}^{+0.08}_{-0.13})\times 10^{-3}$		DESIG=86
Γ_{179}	$K^+\overline{K}_0^*(1430)^0$, $\overline{K}_0^*(1430)^0\to K^-\pi^+$		$(1.81\pm 0.34)\times 10^{-3}$		DESIG=238
Γ_{180}	$K^+\overline{K}_2^*(1430)^0$, $\overline{K}_2^*\to K^-\pi^+$		$(1.6\ {}^{+1.2}_{-0.8})\times 10^{-4}$		DESIG=259
Γ_{181}	$K^+\overline{K}_0^*(700)$, $\overline{K}_0^*\to K^-\pi^+$		$(6.7\ {}^{+3.5}_{-2.1})\times 10^{-4}$		DESIG=260
Γ_{182}	$a_0(1450)^0\pi^+$, $a_0^0\to K^+K^-$		$(4.4\ {}^{+7.0}_{-1.8})\times 10^{-4}$		DESIG=261

Γ_{183}	$\phi(1680)\pi^+,\ \phi \to K^+K^-$	$(4.9\ ^{+4.0}_{-1.9})\times 10^{-5}$		DESIG=262
Γ_{184}	$\phi\pi^+,\ \phi \to K^+K^-$	$(2.67\ ^{+0.06}_{-0.08})\times 10^{-3}$		DESIG=89
Γ_{185}	$\phi\pi^+$	$(5.70 \pm 0.14)\times 10^{-3}$		DESIG=315
Γ_{186}	$K^+K^-\pi^+\pi^0$	$(6.62 \pm 0.32)\times 10^{-3}$		DESIG=335
Γ_{187}	$K^0_S K^0_S \pi^+$	$(2.97 \pm 0.10)\times 10^{-3}$		DESIG=280
Γ_{188}	$K^0_S K^*(892)^+,\ K^{*+} \to K^0_S\pi^+$	$(2.90 \pm 0.11)\times 10^{-3}$		DESIG=376
Γ_{189}	$K^0_S(K^0_S\pi^+) \to K^0_S K^0_S \pi^+$	$(1.31 \pm 0.34)\times 10^{-4}$		DESIG=392
Γ_{190}	$K^0_S K^0_S \pi^+\pi^0$	$(1.34 \pm 0.21)\times 10^{-3}$		DESIG=337
Γ_{191}	$K^0_S K^+\pi^+\pi^-\pi^0$	$(2.5 \pm 0.4)\times 10^{-4}$		DESIG=402
Γ_{192}	$K^0_S K^+\omega$	$(2.0 \pm 0.4)\times 10^{-4}$		DESIG=403
Γ_{193}	$K^0_S K^+\eta$	$(2.27 \pm 0.23)\times 10^{-4}$		DESIG=324
Γ_{194}	$K^+K^0_S\pi^+\pi^-$	$(1.89 \pm 0.13)\times 10^{-3}$		DESIG=134
Γ_{195}	$K^0_S K^+\pi^0\pi^0$	$(5.8 \pm 1.3)\times 10^{-4}$		DESIG=336
Γ_{196}	$K^0_S K^- 2\pi^+$	$(2.27 \pm 0.13)\times 10^{-3}$		DESIG=130
Γ_{197}	$K^+K^-2\pi^+\pi^-$	$(6.7 \pm 1.1)\times 10^{-5}$		DESIG=88
Γ_{198}	$\phi 2\pi^+\pi^-$	$(5.4 \pm 1.9)\times 10^{-5}$		DESIG=401
	A few poorly measured branching fractions:			CLUMP=I;NODE=S031
Γ_{199}	$\phi\pi^+\pi^0$	(2.3 ± 1.0) %		DESIG=53
Γ_{200}	$\phi\rho^+$	<1.5 %	CL=90%	DESIG=93
Γ_{201}	$K^+K^-\pi^+\pi^0$ non-ϕ	$(1.5\ ^{+0.7}_{-0.6})$ %		DESIG=54
	Radiative modes			NODE=S031;CLUMP=G
Γ_{202}	$\rho(770)^+\gamma$	$<1.3\times 10^{-5}$	CL=90%	DESIG=374
Γ_{203}	$K^*(892)^+\gamma$	$<1.8\times 10^{-5}$	CL=90%	DESIG=375
	Doubly Cabibbo-suppressed modes			NODE=S031;CLUMP=K
Γ_{204}	$K^+\pi^0$	$(1.54 \pm 0.13)\times 10^{-4}$	S=1.4	DESIG=234
Γ_{205}	$K^+\eta$	$(1.16 \pm 0.09)\times 10^{-4}$		DESIG=268
Γ_{206}	$K^+\eta'(958)$	$(1.88 \pm 0.14)\times 10^{-4}$		DESIG=269
Γ_{207}	$K^+2\pi^0$	$(2.1 \pm 0.4)\times 10^{-4}$		DESIG=357
Γ_{208}	$K^*(892)^+\pi^0$	$(3.4 \pm 1.4)\times 10^{-4}$		DESIG=359
Γ_{209}	$K^+\pi^+\pi^-$	$(4.88 \pm 0.08)\times 10^{-4}$	S=1.4	DESIG=5
Γ_{210}	$K^+\rho^0$	$(1.9 \pm 0.4)\times 10^{-4}$		DESIG=204
Γ_{211}	$K^+\eta\pi^0$	$(2.1 \pm 0.5)\times 10^{-4}$		DESIG=358
Γ_{212}	$K^*(892)^+\eta$	$(4.4\ ^{+1.8}_{-1.5})\times 10^{-4}$		DESIG=360
Γ_{213}	$K^*(892)^0\pi^+,\ K^*(892)^0 \to K^+\pi^-$	$(2.3 \pm 0.4)\times 10^{-4}$		DESIG=205
Γ_{214}	$K^+f_0(980),\ f_0(980) \to \pi^+\pi^-$	$(4.4 \pm 2.6)\times 10^{-5}$		DESIG=235
Γ_{215}	$K^*_2(1430)^0\pi^+,\ K^*_2(1430)^0 \to K^+\pi^-$	$(3.9 \pm 2.6)\times 10^{-5}$		DESIG=236
Γ_{216}	$K^+\pi^+\pi^-$ nonresonant	not seen		DESIG=211;OUR EVAL;→ UNCHECKED ←
Γ_{217}	$K^+\pi^+\pi^-\pi^0$	$(1.21 \pm 0.09)\times 10^{-3}$		DESIG=332
Γ_{218}	$K^+\pi^+\pi^-\pi^0$ nonresonant	$(1.10 \pm 0.07)\times 10^{-3}$		DESIG=340
Γ_{219}	$K^+\pi^+\pi^-\eta$	$(1.56 \pm 0.22)\times 10^{-4}$		DESIG=398
Γ_{220}	$K^+(\pi^+\pi^-\eta)_{non-\eta'}$	$(6.7 \pm 1.8)\times 10^{-5}$		DESIG=399
Γ_{221}	$K^+\omega$	$(5.7\ ^{+2.5}_{-2.1})\times 10^{-5}$		DESIG=334
Γ_{222}	$K^+\eta\eta$	$(5.9 \pm 2.3)\times 10^{-5}$		DESIG=400
Γ_{223}	$2K^+K^-$	$(6.09 \pm 0.10)\times 10^{-5}$	S=1.3	DESIG=181
Γ_{224}	$\phi(1020)^0K^+$	$<2.1\times 10^{-5}$	CL=90%	DESIG=316
Γ_{225}	$K^+\phi(1020),\ \phi \to K^+K^-$	$(4.3 \pm 0.6)\times 10^{-6}$		DESIG=290
Γ_{226}	$K^+(K^+K^-)_{S-wave}$	$(5.72 \pm 0.11)\times 10^{-5}$		DESIG=291

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

NODE=S031;CLUMP=J

Γ_{227}	$\pi^+ e^+ e^-$	*C1*	< 1.1	$\times 10^{-6}$	CL=90%	DESIG=41
Γ_{228}	$\pi^+ \pi^0 e^+ e^-$		< 1.4	$\times 10^{-5}$	CL=90%	DESIG=284
Γ_{229}	$\pi^+ \phi$, $\phi \to e^+ e^-$	[e]	$(1.7 \begin{smallmatrix} +1.4 \\ -0.9 \end{smallmatrix}$	$) \times 10^{-6}$		DESIG=241
Γ_{230}	$\pi^+ \mu^+ \mu^-$	*C1*	< 6.7	$\times 10^{-8}$	CL=90%	DESIG=42
Γ_{231}	$\pi^+ \phi$, $\phi \to \mu^+ \mu^-$	[e]	$(1.8 \pm 0.8$	$) \times 10^{-6}$		DESIG=264
Γ_{232}	$\rho^+ \mu^+ \mu^-$	*C1*	< 5.6	$\times 10^{-4}$	CL=90%	DESIG=198
Γ_{233}	$K^+ e^+ e^-$	[f]	< 8.5	$\times 10^{-7}$	CL=90%	DESIG=113
Γ_{234}	$K^+ \pi^0 e^+ e^-$		< 1.5	$\times 10^{-5}$	CL=90%	DESIG=285
Γ_{235}	$K^0_S \pi^+ e^+ e^-$		< 2.6	$\times 10^{-5}$	CL=90%	DESIG=286
Γ_{236}	$K^0_S K^+ e^+ e^-$		< 1.1	$\times 10^{-5}$	CL=90%	DESIG=287
Γ_{237}	$K^+ \mu^+ \mu^-$	[f]	< 5.4	$\times 10^{-8}$	CL=90%	DESIG=114
Γ_{238}	$\pi^+ e^+ \mu^-$	*LF*	< 2.1	$\times 10^{-7}$	CL=90%	DESIG=110
Γ_{239}	$\pi^+ e^- \mu^+$	*LF*	< 2.2	$\times 10^{-7}$	CL=90%	DESIG=111
Γ_{240}	$K^+ e^+ \mu^-$	*LF*	< 7.5	$\times 10^{-8}$	CL=90%	DESIG=115
Γ_{241}	$K^+ e^- \mu^+$	*LF*	< 1.0	$\times 10^{-7}$	CL=90%	DESIG=116
Γ_{242}	$\pi^- 2e^+$	*L*	< 5.3	$\times 10^{-7}$	CL=90%	DESIG=117
Γ_{243}	$\pi^- 2\mu^+$	*L*	< 1.4	$\times 10^{-8}$	CL=90%	DESIG=118
Γ_{244}	$\pi^- e^+ \mu^+$	*L*	< 1.3	$\times 10^{-7}$	CL=90%	DESIG=119
Γ_{245}	$\rho^- 2\mu^+$	*L*	< 5.6	$\times 10^{-4}$	CL=90%	DESIG=199
Γ_{246}	$K^- 2e^+$	*L*	< 9	$\times 10^{-7}$	CL=90%	DESIG=120
Γ_{247}	$K^0_S \pi^- 2e^+$	*L*	< 3.3	$\times 10^{-6}$	CL=90%	DESIG=293
Γ_{248}	$K^- \pi^0 2e^+$	*L*	< 8.5	$\times 10^{-6}$	CL=90%	DESIG=294
Γ_{249}	$K^- 2\mu^+$	*L*	< 1.0	$\times 10^{-5}$	CL=90%	DESIG=121
Γ_{250}	$K^- e^+ \mu^+$	*L*	< 1.9	$\times 10^{-6}$	CL=90%	DESIG=122
Γ_{251}	$K^*(892)^- 2\mu^+$	*L*	< 8.5	$\times 10^{-4}$	CL=90%	DESIG=200
Γ_{252}	Λe^+	*L,B*	< 1.1	$\times 10^{-6}$	CL=90%	DESIG=318
Γ_{253}	$\overline{\Lambda} e^+$	*L,B*	< 6.5	$\times 10^{-7}$	CL=90%	DESIG=319
Γ_{254}	$\Sigma^0 e^+$	*L,B*	< 1.7	$\times 10^{-6}$	CL=90%	DESIG=320
Γ_{255}	$\overline{\Sigma}^0 e^+$	*L,B*	< 1.3	$\times 10^{-6}$	CL=90%	DESIG=321
Γ_{256}	$\overline{n} e^+$		< 1.43	$\times 10^{-5}$	CL=90%	DESIG=362
Γ_{257}	$n e^+$		< 2.91	$\times 10^{-5}$	CL=90%	DESIG=361

[a] The branching fraction for this mode may differ from the sum of the submodes that contribute to it, due to interference effects. See the relevant papers. LINKAGE=SDQ

[b] These subfractions of the $K^- 2\pi^+$ mode are uncertain: see the Particle Listings. LINKAGE=UNC

[c] See the listings under "$D \to K\pi\pi\pi$ partial wave analyses" and our 2008 Review (Physics Letters **B667** 1 (2008)) for measurements of submodes of this mode. LINKAGE=S08

[d] The unseen decay modes of the resonances are included. LINKAGE=UDM

[e] This is *not* a test for the ΔC=1 weak neutral current, but leads to the $\pi^+ \ell^+ \ell^-$ final state. LINKAGE=NTC

[f] This mode is not a useful test for a ΔC=1 weak neutral current because both quarks must change flavor in this decay. LINKAGE=FIX

FIT INFORMATION

An overall fit to 41 branching ratios uses 57 measurements to determine 21 parameters. The overall fit has a $\chi^2 = 81.9$ for 36 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, $x_i \equiv \Gamma_i/\Gamma_{\text{total}}$.

x_{22}	0									
x_{29}	0	0								
x_{36}	0	1	0							
x_{48}	0	0	0	0						
x_{49}	0	0	0	0	34					
x_{50}	0	0	0	0	73	25				
x_{66}	0	5	0	0	0	0	0			
x_{68}	0	26	0	3	0	0	0	19		
x_{117}	0	5	0	0	0	0	0	3	17	
x_{130}	0	5	0	1	0	0	0	4	20	3
x_{151}	0	4	0	0	0	0	0	3	16	75
x_{154}	0	3	0	0	0	0	0	2	13	2
x_{168}	0	4	0	0	0	0	0	3	17	3
x_{170}	0	8	0	1	0	0	0	30	30	5
x_{197}	0	0	0	0	0	0	0	0	0	0
x_{204}	0	1	0	0	0	0	0	1	3	1
x_{205}	0	0	0	0	0	0	0	0	1	0
x_{206}	0	1	0	0	0	0	0	1	4	1
x_{209}	0	25	0	3	0	0	0	18	95	16
x_{223}	0	24	0	2	0	0	0	17	90	15
	x_{18}	x_{22}	x_{29}	x_{36}	x_{48}	x_{49}	x_{50}	x_{66}	x_{68}	x_{117}

x_{151}	3									
x_{154}	3	2								
x_{168}	3	3	2							
x_{170}	6	5	4	5						
x_{197}	0	0	0	0	0					
x_{204}	1	1	0	1	1	0				
x_{205}	0	0	8	0	0	0	0			
x_{206}	1	1	0	23	1	0	0	0		
x_{209}	19	15	12	16	29	0	3	1	4	
x_{223}	18	14	11	15	27	0	3	1	4	86
	x_{130}	x_{151}	x_{154}	x_{168}	x_{170}	x_{197}	x_{204}	x_{205}	x_{206}	x_{209}

D^+ BRANCHING RATIOS NODE=S031220

Some now-obsolete measurements have been omitted from these Listings. NODE=S031220

—— c-quark decays —— NODE=S031305

$\Gamma(c \rightarrow e^+ \text{anything})/\Gamma(c \rightarrow \text{anything})$ NODE=S031B93

For the Summary Table, we only use the average of e^+ and μ^+ measurements from $Z^0 \rightarrow c\overline{c}$ decays; see the second data block below. NODE=S031B93

NODE=S031B93

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.103 \pm 0.009^{+0.009}_{-0.008}}$	378	[1] ABBIENDI	99K	OPAL	$Z^0 \rightarrow c\overline{c}$

[1] ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \rightarrow D^0\pi^+$ decays in $Z^0 \rightarrow c\overline{c}$. NODE=S031B93;LINKAGE=KB

$\Gamma(c \to \mu^+ \text{anything})/\Gamma(c \to \text{anything})$

NODE=S031R6

For the Summary Table, we only use the average of e^+ and μ^+ measurements from $Z^0 \to c\bar{c}$ decays; see the next data block.

NODE=S031R6

NODE=S031R6

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.082±0.005 OUR AVERAGE					
$0.073 \pm 0.008 \pm 0.002$	73	KAYIS-TOPAK...	05	CHRS	ν_μ emulsion
$0.095 \pm 0.007 {}^{+0.014}_{-0.013}$	2829	ASTIER	00D	NOMD	$\nu_\mu \text{Fe} \to \mu^- \mu^+ X$
$0.090 \pm 0.007 {}^{+0.007}_{-0.006}$	476	[1] ABBIENDI	99K	OPAL	$Z^0 \to c\bar{c}$
$0.086 \pm 0.017 {}^{+0.008}_{-0.007}$	69	[2] ALBRECHT	92F	ARG	$e^+e^- \approx$ 10 GeV
$0.078 \pm 0.009 \pm 0.012$		ONG	88	MRK2	e^+e^- 29 GeV
$0.078 \pm 0.015 \pm 0.02$		BARTEL	87	JADE	e^+e^- 34.6 GeV
$0.082 \pm 0.012 {}^{+0.02}_{-0.01}$		ALTHOFF	84G	TASS	e^+e^- 34.5 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.093 \pm 0.009 \pm 0.009$	88	KAYIS-TOPAK...	02	CHRS	See KAYIS-TOPAKSU 05
$0.089 \pm 0.018 \pm 0.025$		BARTEL	85J	JADE	See BARTEL 87

[1] ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \to D^0\pi^+$ decays in $Z^0 \to c\bar{c}$.

NODE=S031R6;LINKAGE=KB

[2] ALBRECHT 92F uses the excess of right-sign over wrong-sign leptons in a sample of events tagged by fully reconstructed $D^*(2010)^+ \to D^0\pi^+$ decays.

NODE=S031R6;LINKAGE=E

$\Gamma(c \to \ell^+ \text{anything})/\Gamma(c \to \text{anything})$

NODE=S031B94

This is an average (not a sum) of e^+ and μ^+ measurements.

NODE=S031B94

NODE=S031B94

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.096 ±0.004 OUR AVERAGE					
$0.0958 \pm 0.0042 \pm 0.0028$	1828	[1] ABREU	00O	DLPH	$Z^0 \to c\bar{c}$
$0.095 \pm 0.006 {}^{+0.007}_{-0.006}$	854	[2] ABBIENDI	99K	OPAL	$Z^0 \to c\bar{c}$

[1] ABREU 00O uses leptons opposite fully reconstructed $D^*(2010)^+$, D^+, or D^0 mesons.

NODE=S031B94;LINKAGE=A

[2] ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \to D^0\pi^+$ decays in $Z^0 \to c\bar{c}$.

NODE=S031B94;LINKAGE=KB

$\Gamma(c \to D^*(2010)^+ \text{anything})/\Gamma(c \to \text{anything})$

NODE=S031C3

NODE=S031C3

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.255±0.015±0.008	2371	[1] ABREU	00O	DLPH	$Z^0 \to c\bar{c}$

[1] ABREU 00O uses slow pions opposite fully reconstructed $D^*(2010)^+$, D^+, or D^0 mesons as a signal of $D^*(2010)^-$ production.

NODE=S031C3;LINKAGE=A

Inclusive modes

NODE=S031310

$\Gamma(e^+ \text{semileptonic})/\Gamma_{\text{total}}$ — Γ_1/Γ

NODE=S031R5

The sum of our $\overline{K}^0 e^+\nu_e$, $\overline{K}^*(892)^0 e^+\nu_e$, $\pi^0 e^+\nu_e$, $\eta e^+\nu_e$, $\rho^0 e^+\nu_e$, and $\omega e^+\nu_e$ branching fractions is $15.3 \pm 0.3\%$.

NODE=S031R5

NODE=S031R5

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
16.07±0.30 OUR AVERAGE					
$16.13 \pm 0.10 \pm 0.29$	26.2 ± 0.2k	[1] ASNER	10	CLEO	e^+e^- at 3774 MeV
$15.2 \pm 0.9 \pm 0.8$	521 ± 32	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$16.13 \pm 0.20 \pm 0.33$	8798 ± 105	[2] ADAM	06A	CLEO	See ASNER 10
$17.0 \pm 1.9 \pm 0.7$	158	BALTRUSAIT...	85B	MRK3	e^+e^- 3.77 GeV

[1] Using the D^+ and D^0 lifetimes, ASNER 10 finds that the ratio of the D^+ and D^0 semileptonic widths is $0.985 \pm 0.015 \pm 0.024$.

NODE=S031R5;LINKAGE=AS

[2] Using the D^+ and D^0 lifetimes, ADAM 06A finds that the ratio of the D^+ and D^0 inclusive e^+ widths is $0.985 \pm 0.028 \pm 0.015$, consistent with the isospin-invariance prediction of 1.

NODE=S031R5;LINKAGE=AD

$\Gamma(\mu^+ \text{anything})/\Gamma_{\text{total}}$ — Γ_2/Γ

NODE=S031R02

NODE=S031R02

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
17.6±2.7±1.8	100 ± 12	[1] ABLIKIM	08L	BES2	$e^+e^- \approx \psi(3772)$

[1] ABLIKIM 08L finds the ratio of $D^+ \to \mu^+ X$ and $D^0 \to \mu^+ X$ branching fractions to be $2.59 \pm 0.70 \pm 0.25$, in accord with the ratio of D^+ and D^0 lifetimes, 2.54 ± 0.02.

NODE=S031R02;LINKAGE=AB

$\Gamma(K^- \text{anything})/\Gamma_{total}$ Γ_3/Γ

NODE=S031R1
NODE=S031R1

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
25.7±1.4 OUR AVERAGE					
24.7±1.3±1.2	631 ± 33	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
$27.8^{+3.6}_{-3.1}$		BARLAG	92C	ACCM	π^- Cu 230 GeV
27.1±2.3±2.4		COFFMAN	91	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S \text{anything})/\Gamma_{total}$ Γ_4/Γ

NODE=S031R3
NODE=S031R3

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
33.11±0.13±0.36	95k	ABLIKIM	23AO	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
30.25±2.75±1.65	244	[1] ABLIKIM	06U	BES2	e^+e^- at 3773 MeV
30.6 ±3.25±2.15		[2] COFFMAN	91	MRK3	e^+e^- 3.77 GeV

[1] ABLIKIM 06U reports B($D^0 \to K^0 X$ or $\overline{K}^0 X$) = (60.5 ± 5.5 ± 3.3) × 10^{-2} which we take as twice the branching fraction for $D^+ \to K^0_S X$.

NODE=S031R3;LINKAGE=B

[2] COFFMAN 91 reports B($D^+ \to K^0 X$ or $\overline{K}^0 X$) = (61.2 ± 6.5 ± 4.3) × 10^{-2} which we take as twice the branching fraction for $D^+ \to K^0_S X$.

NODE=S031R3;LINKAGE=C

$\Gamma(K^+ \text{anything})/\Gamma_{total}$ Γ_5/Γ

NODE=S031R2
NODE=S031R2

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
5.9±0.8 OUR AVERAGE					
6.1±0.9±0.4	189 ± 27	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
5.5±1.3±0.9		COFFMAN	91	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^- \text{anything})/\Gamma_{total}$ Γ_6/Γ

NODE=S031R41
NODE=S031R41

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
5.7±5.2±0.7	7.2 ± 6.5	ABLIKIM	06U	BES2	e^+e^- at 3773 MeV

$\Gamma(\overline{K}^*(892)^0 \text{anything})/\Gamma_{total}$ Γ_7/Γ

NODE=S031C20
NODE=S031C20

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
23.2±4.5±3.0	189 ± 36	ABLIKIM	05P	BES	$e^+e^- \approx$ 3773 MeV

$\Gamma(K^*(892)^0 \text{anything})/\Gamma_{total}$ Γ_8/Γ

NODE=S031C21
NODE=S031C21

VALUE (%)	CL%	DOCUMENT ID		TECN	COMMENT
<6.6	90	ABLIKIM	05P	BES	$e^+e^- \approx$ 3773 MeV

$\Gamma(\eta \text{ anything})/\Gamma_{total}$ Γ_9/Γ

NODE=S031R43

This ratio includes η particles from η' decays.

NODE=S031R43
NODE=S031R43

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
6.3±0.5±0.5	1972±142	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\eta' \text{ anything})/\Gamma_{total}$ Γ_{10}/Γ

NODE=S031R44
NODE=S031R44

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.04±0.16±0.09	82 ± 13	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\phi \text{ anything})/\Gamma_{total}$ Γ_{11}/Γ

NODE=S031B95
NODE=S031B95

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
1.12 ±0.04 OUR AVERAGE					
1.135±0.034±0.031	2.7k	ABLIKIM	19AY	BES3	e^+e^- at 3773 MeV
1.03 ±0.10 ±0.07	248 ± 21	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\pi^+\pi^+\pi^- \text{anything})/\Gamma_{total}$ Γ_{12}/Γ

NODE=S031P96
NODE=S031P96

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
15.25±0.09±0.18	124k	ABLIKIM	23AI	BES3	2.93 fb^{-1}, e^+e^- at $\psi(3770)$

Leptonic and semileptonic modes

NODE=S031315

$\Gamma(e^+\nu_e)/\Gamma_{total}$ Γ_{13}/Γ

NODE=S031R7
NODE=S031R7

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9.7 × 10^{-7} (CL = 90%) [<8.8 × 10^{-6} (CL = 90%) OUR 2025 BEST LIMIT]					
<9.7 × 10^{-7}	90	ABLIKIM	25BK	BES3	e^+e^- at $\sqrt{s}$ = 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<8.8 × 10^{-6}	90	EISENSTEIN	08	CLEO	e^+e^- at $\psi(3770)$
<2.4 × 10^{-5}	90	ARTUSO	05A	CLEO	See EISENSTEIN 08

$\Gamma(\gamma e^+ \nu_e)/\Gamma_{total}$ Γ_{14}/Γ

NODE=S031P07
NODE=S031P07

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.2 × 10^−5 (CL = 90%) [<3.0 × 10^−5 (CL = 90%) OUR 2025 BEST LIMIT]					
<1.2 × 10^−5	90	[1] ABLIKIM	25CP	BES3	$e^+ e^-$ at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<3.0 × 10^−5	90	[1] ABLIKIM	17M	BES3	Superseded by ABLIKIM 25CP

[1] The limit is for photons with energies greater than 10 MeV.

NODE=S031P07;LINKAGE=A

$\Gamma(\mu^+ \nu_\mu)/\Gamma_{total}$ Γ_{15}/Γ

NODE=S031R8

See the note on "Decay Constants of Charged Pseudoscalar Mesons" in the D_s^+ Listings.

NODE=S031R8

NODE=S031R8

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.02 ± 0.09 OUR AVERAGE					
[(3.74 ± 0.17) × 10^{-4} OUR 2025 AVERAGE]					
4.034 ± 0.080 ± 0.040	2.8k	[1] ABLIKIM	25BM	BES3	$e^+ e^- \approx$ 3.773 GeV
3.82 ± 0.32 ± 0.09	150	[2] EISENSTEIN	08	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.71 ± 0.19 ± 0.06	409	[3] ABLIKIM	14F	BES3	$e^+ e^-$ at $\psi(3770)$
$12.2 ^{+11.1}_{-5.3} \pm 1.0$	3	[4] ABLIKIM	05D	BES	$e^+ e^- \approx$ 3.773 GeV
$4.40 \pm 0.66 ^{+0.09}_{-0.12}$	47	[5] ARTUSO	05A	CLEO	See EISENSTEIN 08
3.5 ± 1.4 ± 0.6	7	[6] BONVICINI	04A	CLEO	Incl. in ARTUSO 05A
$8 ^{+16}_{-5} {}^{+5}_{-2}$	1	[7] BAI	98B	BES	$e^+ e^- \to D^{*+} D^-$

NEW

[1] ABLIKIM 25M obtain $|V_{cd}| \cdot f_{D^+} = (48.02 \pm 0.48 \pm 0.24 \pm 0.12 \pm 0.15)$ MeV, where the 3rd and 4th uncertainties are due to the D^+ lifetime and radiative corrections.

NODE=S031R8;LINKAGE=E

[2] EISENSTEIN 08, using the D^+ lifetime and assuming $|V_{cd}| = |V_{us}|$, gets $f_{D^+} = (205.8 \pm 8.5 \pm 2.5)$ MeV from this measurement.

NODE=S031R8;LINKAGE=EI

[3] ABLIKIM 14F obtain $|V_{cd}| \cdot f_{D^+} = (45.75 \pm 1.20 \pm 0.39)$ MeV, and using $|V_{cd}| = 0.22520 \pm 0.00065$ gets $f_{D^+} = (203.2 \pm 5.3 \pm 1.8)$ MeV. Superseded by ABLIKIM 25BM.

NODE=S031R8;LINKAGE=D

[4] ABLIKIM 05D finds a background-subtracted 2.67 ± 1.74 $D^+ \to \mu^+ \nu_\mu$ events, and from this obtains $f_{D^+} = 371 ^{+129}_{-119} \pm 25$ MeV.

NODE=S031R8;LINKAGE=AB

[5] ARTUSO 05A obtains $f_{D^+} = 222.6 \pm 16.7 ^{+2.8}_{-3.4}$ MeV from this measurement.

NODE=S031R8;LINKAGE=AR

[6] BONVICINI 04A finds eight events with an estimated background of one, and from the branching fraction obtains $f_{D^+} = 202 \pm 41 \pm 17$ MeV.

NODE=S031R8;LINKAGE=BO

[7] BAI 98B obtains $f_{D^+} = (300 ^{+180}_{-150} {}^{+80}_{-40})$ MeV from this measurement.

NODE=S031R8;LINKAGE=C

$\Gamma(\tau^+ \nu_\tau)/\Gamma_{total}$ Γ_{16}/Γ

NODE=S031R40
NODE=S031R40

VALUE (units 10^{-3})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
0.99±0.12 OUR AVERAGE [(1.20 ± 0.27) × 10^{-3} OUR 2025 AVERAGE]						
0.99±0.11±0.05		283	[1,2] ABLIKIM	25BB	BES3	$e^+ e^-$ at 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
1.20±0.24±0.12		137	[1,3] ABLIKIM	19BG	BES3	$e^+ e^-$ at 3773 MeV
<1.2	90		EISENSTEIN	08	CLEO	$e^+ e^-$ at $\psi(3770)$
<2.1	90		RUBIN	06A	CLEO	See EISENSTEIN 08

NEW

[1] Reconstructs the τ via $\tau \to \pi \nu$.

NODE=S031R40;LINKAGE=B

[2] ABLIKIM 25BB obtains $|V_{cd}| \cdot f_{D^+} = 45.9 \pm 2.5 \pm 1.2 \pm 0.1$ MeV, where the 3rd uncertainty is from the D^+ lifetime.

NODE=S031R40;LINKAGE=C

[3] ABLIKIM 19BG observe this mode with a significance of 5.1 σ. Superseded by ABLIKIM 25BB.

NODE=S031R40;LINKAGE=A

$\Gamma(\overline{K}^0 e^+ \nu_e)/\Gamma_{total}$ Γ_{17}/Γ

NODE=S031R93
NODE=S031R93

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
8.81 ±0.07 OUR AVERAGE					
8.864±0.039±0.082	58k	ABLIKIM	24CN	BES3	$e^+ e^-$ at 3.773 GeV
8.68 ±0.14 ±0.16	1172	ABLIKIM	21BA	BES3	$e^+ e^-$ at 3.773 GeV
8.59 ±0.14 ±0.21	5013	ABLIKIM	16V	BES3	Using $\overline{K}^0 \to 2\pi^0$
8.83 ±0.10 ±0.20	8.5k	[1] BESSON	09	CLEO	from $D^+ \to K_S e^+ \nu_e$
8.95 ±1.59 ±0.67	34	[2] ABLIKIM	05A	BES	from $D^+ \to K_S e^+ \nu_e$

• • • We do not use the following data for averages, fits, limits, etc. • • •

8.60 ±0.06 ±0.15	26k	[3] ABLIKIM	17S	BES3	Using $\overline{K}^0 \to \pi^+\pi^-$
8.962±0.054±0.206	40k	[3,4] ABLIKIM	15AF	BES3	from $D^+ \to K_L e^+ \nu_e$
8.53 ±0.13 ±0.23		[5] DOBBS	08	CLEO	See BESSON 09
8.71 ±0.38 ±0.37	545	HUANG	05B	CLEO	See DOBBS 08

[1] See the form-factor parameters near the end of this D^+ Listing.

[2] The ABLIKIM 05A result together with the $D^0 \to K^- e^+ \nu_e$ branching fraction of ABLIKIM 04C and Particle Data Group lifetimes gives $\Gamma(D^0 \to K^- e^+ \nu_e)$ / $\Gamma(D^+ \to \overline{K}^0 e^+ \nu_e)$ = 1.08 ± 0.22 ± 0.07; isospin invariance predicts the ratio is 1.0.

[3] Superseded by ABLIKIM 24CN.

[4] ABLIKIM 15AF report $\Gamma(D^+ \to K_L e^+ \nu_e)/\Gamma_{\text{total}}$ = (4.481 ± 0.027 ± 0.103)%. See also the form-factor parameters near the end of this D^+ Listing.

[5] DOBBS 08 establishes $\left|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}\right|$ = 0.188 ± 0.008 ± 0.002 from the D^+ and D^0 decays to $\overline{K} e^+ \nu_e$ and $\pi e^+ \nu_e$. It also finds $\Gamma(D^0 \to K^- e^+ \nu_e)$ / $\Gamma(D^+ \to \overline{K}^0 e^+ \nu_e)$ = 1.06 ± 0.02 ± 0.03; isospin invariance predicts the ratio is 1.0.

NODE=S031R93;LINKAGE=BE
NODE=S031R93;LINKAGE=AB
NODE=S031R93;LINKAGE=D
NODE=S031R93;LINKAGE=B
NODE=S031R93;LINKAGE=DB

$\Gamma(\overline{K}^0 \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ — Γ_{18}/Γ

NODE=S031R94
NODE=S031R94

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
8.68 ±0.10 OUR FIT					
8.665±0.046±0.084	47k	ABLIKIM	24CN	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.72 ±0.07 ±0.18	21k	[1] ABLIKIM	16G	BES3	e^+e^- at 3773 MeV
10.3 ±2.3 ±0.8	29 ± 6	ABLIKIM	07	BES2	e^+e^- at 3773 MeV

[1] Superseded by ABLIKIM 24CN.

NODE=S031R94;LINKAGE=A

$\Gamma(\overline{K}^0 \mu^+ \nu_\mu)/\Gamma(K^- 2\pi^+)$ — Γ_{18}/Γ_{68}

NODE=S031S04
NODE=S031S04

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.932±0.017 OUR FIT Error includes scale factor of 1.2. [0.925 ± 0.018 OUR 2025 FIT Scale factor = 1.3]					
1.019±0.076±0.065	555 ± 39	LINK	04E	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

NEW

$\Gamma(K^- \pi^+ e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{22}/Γ

NODE=S031R45
NODE=S031R45

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.00±0.17 OUR FIT Error includes scale factor of 3.1. [(4.02 ± 0.18) × 10^{-2} OUR 2025 FIT Scale factor = 3.2]					
3.77±0.03±0.08	18.3k	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.50±0.75±0.27	29	ABLIKIM	06O	BES2	e^+e^- at 3773 MeV
3.5 $^{+1.2}_{-0.7}$ ±0.4	14	BAI	91	MRK3	$e^+e^- \approx$ 3.77 GeV

NEW

$\Gamma(K^- \pi^+ e^+ \nu_e)/\Gamma(K^- 2\pi^+)$ — Γ_{22}/Γ_{68}

NODE=S031B02
NODE=S031B02

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.429 ±0.018 OUR FIT Error includes scale factor of 3.6. [0.428 ± 0.018 OUR 2025 FIT Scale factor = 3.7]					
0.4380±0.0036±0.0042	70k±363	DEL-AMO-SA..11I		BABR	$e^+e^- \approx$ 10.6 GeV

NEW

$\Gamma(\overline{K}^*(892)^0 e^+ \nu_e, \overline{K}^*(892)^0 \to K^- \pi^+)/\Gamma(K^- \pi^+ e^+ \nu_e)$ — Γ_{23}/Γ_{22}

NODE=S031B03
NODE=S031B03

VALUE (%)	DOCUMENT ID		TECN	COMMENT
93.94±0.27 OUR AVERAGE				
93.93±0.22±0.18	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$
94.11±0.74±0.75	DEL-AMO-SA..11I		BABR	$e^+e^- \approx$ 10.6 GeV

$\Gamma((K^- \pi^+)_{[0.8\text{–}1.0]\text{GeV}} e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{24}/Γ

NODE=S031P01
NODE=S031P01

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.39±0.03±0.08	16.2k	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$

$\Gamma((K^- \pi^+)_{S-wave} e^+ \nu_e)/\Gamma_{\text{total}}$ — Γ_{25}/Γ

NODE=S031P00
NODE=S031P00

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
2.28±0.08±0.08	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$

$\Gamma\big((K^-\pi^+)_{S-wave}e^+\nu_e\big)/\Gamma\big(K^-\pi^+e^+\nu_e\big)$ — Γ_{25}/Γ_{22}

NODE=S031B04

VALUE (%)	DOCUMENT ID		TECN	COMMENT
5.89±0.17 OUR AVERAGE				
6.05±0.22±0.18	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$
5.79±0.16±0.15	DEL-AMO-SA...	11I	BABR	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(\overline{K}^*(1410)^0 e^+\nu_e,\ \overline{K}^*(1410)^0 \to K^-\pi^+\big)/\Gamma_{total}$ — Γ_{26}/Γ

NODE=S031B05

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6\times10^{-3}$	90	DEL-AMO-SA...	11I	BABR	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(\overline{K}^*_2(1430)^0 e^+\nu_e,\ \overline{K}^*_2(1430)^0 \to K^-\pi^+\big)/\Gamma_{total}$ — Γ_{27}/Γ

NODE=S031B06

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5\times10^{-4}$	90	DEL-AMO-SA...	11I	BABR	$e^+e^- \approx$ 10.6 GeV

$\Gamma\big(K^-\pi^+e^+\nu_e$ nonresonant$\big)/\Gamma_{total}$ — Γ_{28}/Γ

NODE=S031R59

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.007	90	ANJOS	89B	E691	Photoproduction

$\Gamma\big(K^0_S\pi^0e^+\nu_e\big)/\Gamma_{total}$ — Γ_{19}/Γ

NODE=S031Q11

NEW

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
9.43±0.16 OUR AVERAGE [$(8.81\pm0.23)\times10^{-3}$ OUR 2025 AVERAGE]					
9.43±0.12±0.10	11k	ABLIKIM	25BP	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.81±0.17±0.16	3.8k	ABLIKIM	24CS	BES3	Superseded by ABLIKIM 25BP

$\Gamma\big((K^0_S\pi^0)_{S-wave}e^+\nu_e\big)/\Gamma\big(K^0_S\pi^0e^+\nu_e\big)$ — Γ_{20}/Γ_{19}

NODE=S031Q21

NEW

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.39±0.22 OUR AVERAGE [$(6.1\pm0.4)\times10^{-2}$ OUR 2025 AVERAGE]					
6.39±0.17±0.14	11k	[1] ABLIKIM	25BP	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.13±0.27±0.30	3.8k	[1,2] ABLIKIM	24CS	BES3	Superseded by ABLIKIM 25BP

[1] Amplitude analysis with two components. NODE=S031Q21;LINKAGE=B

[2] ABLIKIM 24CS reports a branching fraction $B(D^+ \to (K^0_S\pi^0)_{S-wave}e^+\nu_e) = (5.41\pm0.35\pm0.37)\times10^{-4}$. NODE=S031Q21;LINKAGE=A

$\Gamma\big(\overline{K}^*(892)^0e^+\nu_e,\ \overline{K}^{*0}\to K^0_S\pi^0\big)/\Gamma\big(K^0_S\pi^0e^+\nu_e\big)$ — Γ_{21}/Γ_{19}

NODE=S031Q22

NEW

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
93.50±0.33 OUR AVERAGE [$(93.9\pm0.4)\times10^{-2}$ OUR 2025 AVERAGE]					
93.50±0.18±0.28	11k	[1] ABLIKIM	25BP	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
93.88±0.27±0.29	3.8k	[1,2] ABLIKIM	24CS	BES3	Superseded by ABLIKIM 25BP

[1] Amplitude analysis with two components. NODE=S031Q22;LINKAGE=C

[2] ABLIKIM 24CS reports a branching fraction $B(D^+ \to \overline{K}^*(892)^0e^+\nu_e) = (4.97\pm0.11\pm0.12)\times10^{-2}$. NODE=S031Q22;LINKAGE=B

$\Gamma\big(\overline{K}^*(892)^0e^+\nu_e\big)/\Gamma_{total}$ — Γ_{29}/Γ

NODE=S031C15

Unseen decay modes of $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0\ell^+\nu_\ell$ form-factor ratios. NODE=S031C15

NODE=S031C15

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.40±0.10 OUR FIT Error includes scale factor of 1.1.					
5.40±0.10 OUR AVERAGE Error includes scale factor of 1.1.					
5.31±0.05±0.12	16.2k	ABLIKIM	16F	BES3	e^+e^- at $\psi(3770)$
5.52±0.07±0.13	≈ 5k	BRIERE	10	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
5.06±1.21±0.40	28 ± 7	ABLIKIM	06O	BES2	e^+e^- at 3773 MeV
5.56±0.27±0.23	422 ± 21	[1] HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

[1] HUANG 05B finds $\Gamma(D^0 \to K^{*-}e^+\nu_e)\ /\ \Gamma(D^+ \to \overline{K}^{*0}e^+\nu_e) = 0.98\pm0.08\pm0.04$; isospin invariance predicts the ratio is 1.0. NODE=S031C15;LINKAGE=HU

$\Gamma(\overline{K}^*(892)^0 e^+ \nu_e)/\Gamma(K^- 2\pi^+)$ Γ_{29}/Γ_{68}

NODE=S031R58

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.

NODE=S031R58

NODE=S031R58

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.74 \pm 0.04 \pm 0.05$		BRANDENB...	02	CLEO	$e^+ e^- \approx \Upsilon(4S)$
$0.62 \pm 0.15 \pm 0.09$	35	ADAMOVICH	91	OMEG	π^- 340 GeV
$0.55 \pm 0.08 \pm 0.10$	880	ALBRECHT	91	ARG	$e^+ e^- \approx$ 10.4 GeV
$0.49 \pm 0.04 \pm 0.05$		ANJOS	89B	E691	Photoproduction

$\Gamma(K^0_S \pi^0 \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ Γ_{30}/Γ

NODE=S031Q46
NODE=S031Q46

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
8.96±0.17±0.08	6.8k	ABLIKIM	25BP	BES3	$e^+ e^-$ at $\sqrt{s} = 3.773$ GeV

$\Gamma((K^0_S \pi^0)_{S-wave} \mu^+ \nu_\mu)/\Gamma(K^0_S \pi^0 \mu^+ \nu_\mu)$ Γ_{31}/Γ_{30}

NODE=S031Q47
NODE=S031Q47

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.10±0.68±0.41	6.8k	[1] ABLIKIM	25BP	BES3	$e^+ e^-$ at $\sqrt{s} = 3.773$ GeV

[1] Amplitude analysis with two components.

NODE=S031Q47;LINKAGE=A

$\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu,\ \overline{K}^{*0} \to K^0_S \pi^0)/\Gamma(K^0_S \pi^0 \mu^+ \nu_\mu)$ Γ_{32}/Γ_{30}

NODE=S031Q48
NODE=S031Q48

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
92.81±0.67±0.47	6.8k	[1] ABLIKIM	25BP	BES3	$e^+ e^-$ at $\sqrt{s} = 3.773$ GeV

[1] Amplitude analysis with two components.

NODE=S031Q48;LINKAGE=A

$\Gamma(K^- \pi^+ \mu^+ \nu_\mu)/\Gamma(\overline{K}^0 \mu^+ \nu_\mu)$ Γ_{33}/Γ_{18}

NODE=S031S02
NODE=S031S02

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.417±0.030±0.023	555 ± 39	LINK	04E	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(K^- \pi^+ \mu^+ \nu_\mu \text{ nonresonant})/\Gamma(K^- \pi^+ \mu^+ \nu_\mu)$ Γ_{35}/Γ_{33}

NODE=S031B52
NODE=S031B52

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.0530 \pm 0.0074^{+0.0099}_{-0.0096}$	14k	LINK	05I	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma_{\text{total}}$ Γ_{36}/Γ

NODE=S031C36

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.

NODE=S031C36

NODE=S031C36

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.26±0.15 OUR FIT Error includes scale factor of 1.1. [(5.27 ± 0.15) × 10^{-2} OUR 2025 FIT Scale factor = 1.1]					
5.27±0.07±0.14	≈ 5k	BRIERE	10	CLEO	$e^+ e^-$ at $\psi(3770)$

NEW

$\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma(\overline{K}^0 \mu^+ \nu_\mu)$ Γ_{36}/Γ_{18}

NODE=S031S03

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.

NODE=S031S03

NODE=S031S03

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.607±0.019 OUR FIT Error includes scale factor of 1.1.					
0.594±0.043±0.033	555 ± 39	LINK	04E	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu)/\Gamma(K^- 2\pi^+)$ Γ_{36}/Γ_{68}

NODE=S031B51

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.

NODE=S031B51

NODE=S031B51

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.565±0.018 OUR FIT Error includes scale factor of 1.1. [0.562 ± 0.018 OUR 2025 FIT Scale factor = 1.1]					
0.57 ±0.06 OUR AVERAGE Error includes scale factor of 1.2.					
$0.72 \pm 0.10 \pm 0.05$		BRANDENB...	02	CLEO	$e^+ e^- \approx \Upsilon(4S)$
$0.56 \pm 0.04 \pm 0.06$	875	FRABETTI	93E	E687	γBe $\overline{E}_\gamma \approx$ 200 GeV
$0.46 \pm 0.07 \pm 0.08$	224	KODAMA	92C	E653	π^- emulsion 600 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.602 \pm 0.010 \pm 0.021$	12k	[1] LINK	02J	FOCS	γ nucleus, ≈ 180 GeV

NEW

[1] This LINK 02J result includes the effects of an interference of a small S-wave $K^- \pi^+$ amplitude with the dominant $\overline{K}^{*0}$ amplitude. (The interference effect is reported in LINK 02E.) This result is redundant with results of LINK 04E elsewhere in these Listings.

NODE=S031B51;LINKAGE=BQ

$\Gamma(K^-\pi^+\pi^0\mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ — Γ_{39}/Γ_{33}

NODE=S031B53

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.042	90	FRABETTI	93E	E687	γ Be $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(\overline{K}_1(1270)^0 e^+\nu_e,\ \overline{K}_1^0 \to K^-\pi^+\pi^0)/\Gamma_{total}$ — Γ_{37}/Γ

NODE=S031P44

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.23±0.08 OUR AVERAGE Error includes scale factor of 1.3. [(1.06 ± 0.15) × 10^{-3} OUR 2025 AVERAGE]					
1.27±0.06±0.04	1.3k	[1] ABLIKIM	25AM	BES3	e^+e^- at 3.773 GeV
$1.06\pm0.12^{+0.08}_{-0.10}$	120	[2] ABLIKIM	19BH	BES3	e^+e^- at 3773 MeV

NEW

[1] ABLIKIM 25AM quotes B($D^+ \to \overline{K}_1(1270)^0 e^+\nu_e$) = (2.27 ± 0.11 ± 0.07 ± 0.07) × 10^{-3}, where the last uncertainty is due to B($\overline{K}_1(1270)^0 \to K^-\pi^+\pi^0$) = (56.0 ± 1.7)%. This amplitude analysis with several substructures includes $K_1(1270) \to \rho K^-$ (S-wave) and $K_1(1270) \to \pi\overline{K}^*(892)$ (S- and D-wave).

NODE=S031P44;LINKAGE=B

[2] ABLIKIM 19BH quotes B($D^+ \to \overline{K}_1(1270)^0 e^+\nu_e$) = $(2.30 \pm 0.26^{+0.18}_{-0.21} \pm 0.25) \times 10^{-3}$, where the last uncertainty is due to B($\overline{K}_1(1270)^0 \to K^-\pi^+\pi^0$) = 0.467±0.050.

NODE=S031P44;LINKAGE=A

$\Gamma(\overline{K}_1(1270)^0 e^+\nu_e,\ \overline{K}_1^0 \to K_S^0\pi^+\pi^-)/\Gamma_{total}$ — Γ_{38}/Γ

NODE=S031Q23

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{1.47^{+0.45}_{-0.40}\pm0.14}$	20	[1] ABLIKIM	24CR	BES3	e^+e^- at $\sqrt{s}$ = 3.773 GeV

[1] ABLIKIM 24CR reconstructs $D^+ \to K_S^0\pi^+\pi^- e^+\nu_e$ and assumes that all come from $\overline{K}_1^0 \to K_S^0\pi^+\pi^-$ decays.

NODE=S031Q23;LINKAGE=A

$\Gamma(\overline{K}_1(1270)^0 \mu^+\nu_\mu,\ \overline{K}_1^0 \to K^-\pi^+\pi^0)/\Gamma_{total}$ — Γ_{40}/Γ

NODE=S031Q30

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{10.92\pm0.91^{+0.82}_{-1.26}}$	383	ABLIKIM	25AU	BES3	e^+e^- at 3.773 GeV

$\Gamma(\overline{K}_1(1400)^0 e^+\nu_e)/\Gamma_{total}$ — Γ_{41}/Γ

NODE=S031Q34

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$\mathbf{<1.4\times10^{-4}}$	90	ABLIKIM	25AM	BES3	e^+e^- at 3.773 GeV

$\Gamma(\overline{K}_0^*(1430)^0 \mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ — Γ_{42}/Γ_{33}

NODE=S031C18

Unseen decay modes of the $\overline{K}_0^*(1430)^0$ are included.

NODE=S031C18

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0064	90	LINK	05I	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(\overline{K}^*(1680)^0 \mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ — Γ_{43}/Γ_{33}

NODE=S031C19

Unseen decay modes of the $\overline{K}^*(1680)^0$ are included.

NODE=S031C19

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.04	90	LINK	05I	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(\pi^0 e^+\nu_e)/\Gamma_{total}$ — Γ_{44}/Γ

NODE=S031C16

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.372±0.017 OUR AVERAGE Error includes scale factor of 2.0.					
0.363±0.008±0.005	3.4k	ABLIKIM	17S	BES3	Using $\pi^0 \to 2\gamma$
0.405±0.016±0.009	838	[1] BESSON	09	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.373±0.022±0.013		[2] DOBBS	08	CLEO	See BESSON 09
0.44 ±0.06 ±0.03	63 ± 9	HUANG	05B	CLEO	See DOBBS 08

[1] See the form-factor parameters near the end of this D^+ Listing.

NODE=S031C16;LINKAGE=BE

[2] DOBBS 08 establishes $\left|\frac{V_{cd}}{V_{cs}} \cdot \frac{f_+^\pi(0)}{f_+^K(0)}\right|$ = 0.188 ± 0.008 ± 0.002 from the D^+ and D^0 decays to $\overline{K}e^+\nu_e$ and $\pi e^+\nu_e$. It finds $\Gamma(D^0 \to \pi^- e^+\nu_e)$ / $\Gamma(D^+ \to \pi^0 e^+\nu_e)$ = 2.03 ± 0.14 ± 0.08; isospin invariance predicts the ratio is 2.0.

NODE=S031C16;LINKAGE=DB

$\Gamma(\pi^0\mu^+\nu_\mu)/\Gamma_{total}$ — Γ_{45}/Γ

NODE=S031P18

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.350±0.011±0.010	1.3k	ABLIKIM	18AE	BES3	e^+e^-, 3773 MeV

$\Gamma(\eta e^+ \nu_e)/\Gamma_{total}$ Γ_{46}/Γ

NODE=S031C34
NODE=S031C34

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
11.1 ±0.7 OUR AVERAGE					
10.74±0.81±0.51	373	ABLIKIM	18R	BES3	$e^+ e^-$, 3773 MeV
11.4 ±0.9 ±0.4		YELTON	11	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
13.3 ±2.0 ±0.6	46	MITCHELL	09B	CLEO	See YELTON 11

$\Gamma(\eta \mu^+ \nu_\mu)/\Gamma_{total}$ Γ_{47}/Γ

NODE=S031P47
NODE=S031P47

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
10.41±1.12±0.05	234	[1] ABLIKIM	20T	BES3	$e^+ e^-$, 3773 MeV

[1] ABLIKIM 20T reports $(10.4 \pm 1.0 \pm 0.5) \times 10^{-4}$ from a measurement of $[\Gamma(D^+ \to \eta \mu^+ \nu_\mu)/\Gamma_{total}] \times [B(\eta \to 2\gamma)]$ assuming $B(\eta \to 2\gamma) = (39.41 \pm 0.20) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\eta \to 2\gamma) = (39.36 \pm 0.18) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value.

NODE=S031P47;LINKAGE=B

$\Gamma(\pi^- \pi^+ e^+ \nu_e)/\Gamma_{total}$ Γ_{48}/Γ

NODE=S031P24
NODE=S031P24

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.45 ±0.08 OUR FIT					
2.449±0.074±0.073	1.7k	ABLIKIM	19C	BES3	$e^+ e^-$ at 3773 MeV

$\Gamma(f_0(500)^0 e^+ \nu_e,\ f_0(500)^0 \to \pi^+ \pi^-)/\Gamma(\pi^- \pi^+ e^+ \nu_e)$ Γ_{49}/Γ_{48}

NODE=S031P27
NODE=S031P27

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
25.4±1.7 OUR FIT					
25.7±1.6±1.1	1.5k	ABLIKIM	19C	BES3	$\pi^- \pi^+ e^+ \nu_e$ events

$\Gamma(f_0(500)^0 e^+ \nu_e,\ f_0(500)^0 \to \pi^+ \pi^-)/\Gamma_{total}$ Γ_{49}/Γ

NODE=S031Q29
NODE=S031Q29

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.2±0.4 OUR FIT					
6.0±0.6±0.5	0.4k	ABLIKIM	24CK	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(\rho^0 e^+ \nu_e)/\Gamma_{total}$ Γ_{50}/Γ

NODE=S031R95
NODE=S031R95

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.87±0.06 OUR FIT					
1.88±0.10 OUR AVERAGE Error includes scale factor of 1.2.					
1.84±0.07±0.06	1237	ABLIKIM	24CK	BES3	$e^+ e^-$ at 3.773 GeV
$2.17 \pm 0.12^{+0.12}_{-0.22}$	447 ± 25	[1] DOBBS	13	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.1 ±0.4 ±0.1	27 ± 6	[2] HUANG	05B	CLEO	See DOBBS 13

[1] DOBBS 13 finds $\Gamma(D^0 \to \rho^- e^+ \nu_e)$ / 2 $\Gamma(D^+ \to \rho^0 e^+ \nu_e) = 1.03 \pm 0.09^{+0.08}_{-0.02}$; isospin invariance predicts the ratio is 1.0.

NODE=S031R95;LINKAGE=DO

[2] HUANG 05B finds $\Gamma(D^0 \to \rho^- e^+ \nu_e)$ / 2 $\Gamma(D^+ \to \rho^0 e^+ \nu_e) = 1.2^{+0.4}_{-0.3} \pm 0.1$; isospin invariance predicts the ratio is 1.0.

NODE=S031R95;LINKAGE=HU

$\Gamma(\rho^0 e^+ \nu_e)/\Gamma(\pi^- \pi^+ e^+ \nu_e)$ Γ_{50}/Γ_{48}

NODE=S031P25
NODE=S031P25

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
76.2±1.9 OUR FIT					
76.0±1.7±1.1	1.5k	ABLIKIM	19C	BES3	$\pi^- \pi^+ e^+ \nu_e$ events

$\Gamma(\rho^0 e^+ \nu_e)/\Gamma(\overline{K}^*(892)^0 e^+ \nu_e)$ Γ_{50}/Γ_{29}

NODE=S031B77
NODE=S031B77

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0346±0.0013 OUR FIT					
0.045 ±0.014 ±0.009	49	[1] AITALA	97	E791	π^- nucleus, 500 GeV

[1] AITALA 97 explicitly subtracts $D^+ \to \eta' e^+ \nu_e$ and other backgrounds to get this result.

NODE=S031B77;LINKAGE=BK

$\Gamma(f_0(500)^0 \mu^+ \nu_\mu,\ f_0^0 \to \pi^+ \pi^-)/\Gamma_{total}$ Γ_{52}/Γ

NODE=S031Q12
NODE=S031Q12

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
7.2±1.3±0.8	0.2k	ABLIKIM	24CK	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(\rho^0 \mu^+ \nu_\mu)/\Gamma_{total}$ Γ_{53}/Γ

NODE=S031Q13
NODE=S031Q13

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.64±0.13±0.10	0.5k	ABLIKIM	24CK	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(\rho^0\mu^+\nu_\mu)/\Gamma(\overline{K}^*(892)^0\mu^+\nu_\mu)$ Γ_{53}/Γ_{36}

NODE=S031B50
NODE=S031B50

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.045±0.007 OUR AVERAGE Error includes scale factor of 1.1.				
0.041±0.006±0.004	320 ± 44	LINK 06B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.051±0.015±0.009	54	[1] AITALA 97	E791	π^- nucleus, 500 GeV
0.079±0.019±0.013	39	[2] FRABETTI 97	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV

[1] AITALA 97 explicitly subtracts $D^+ \to \eta' \mu^+ \nu_\mu$ and other backgrounds to get this result. NODE=S031B50;LINKAGE=BK

[2] Because the reconstruction efficiency for photons is low, this FRABETTI 97 result also includes any $D^+ \to \eta' \mu^+ \nu_\mu \to \gamma \rho^0 \mu^+ \nu_\mu$ events in the numerator. NODE=S031B50;LINKAGE=B

$\Gamma(\omega e^+\nu_e)/\Gamma_{total}$ Γ_{54}/Γ

NODE=S031C14
NODE=S031C14

VALUE (units 10^{-3})	EVTS	DOCUMENT ID	TECN	COMMENT
1.69±0.11 OUR AVERAGE				
1.63±0.11±0.08	491 ± 32	ABLIKIM 15W	BES3	292 fb^{-1}, 3773 MeV
1.82±0.18±0.07	129 ± 13	DOBBS 13	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.6 $^{+0.7}_{-0.6}$ ±0.1	7.6$^{+3.3}_{-2.7}$	HUANG 05B	CLEO	See DOBBS 13

$\Gamma(\omega e^+\nu_e)/\Gamma(\pi^-\pi^+e^+\nu_e)$ Γ_{54}/Γ_{48}

NODE=S031P26
NODE=S031P26

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
1.28±0.41±0.15	1.5k	ABLIKIM 19C	BES3	$\pi^-\pi^+e^+\nu_e$ events

$\Gamma(\omega\mu^+\nu_\mu)/\Gamma_{total}$ Γ_{55}/Γ

NODE=S031P52
NODE=S031P52

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
17.7±2.1±0.1	194	[1] ABLIKIM 20H	BES3	e^+e^-, 3773 MeV

[1] ABLIKIM 20H reports $(17.7 \pm 1.8 \pm 1.1) \times 10^{-4}$ from a measurement of $[\Gamma(D^+ \to \omega\mu^+\nu_\mu)/\Gamma_{total}] \times [B(\omega(782) \to \pi^+\pi^-\pi^0)]$ assuming $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.3 \pm 0.6) \times 10^{-2}$, which we rescale to our best (shown rounded) value $B(\omega(782) \to \pi^+\pi^-\pi^0) = (89.2 \pm 0.7) \times 10^{-2}$. Our first error is their experiment's error and our second error is the systematic error from using our best (shown rounded) value. NODE=S031P52;LINKAGE=B

$\Gamma(\eta'(958)e^+\nu_e)/\Gamma_{total}$ Γ_{56}/Γ

NODE=S031C35
NODE=S031C35

NEW

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	COMMENT
1.84±0.19 OUR AVERAGE					
[$(2.0 \pm 0.4) \times 10^{-4}$ OUR 2025 AVERAGE]					
1.79±0.19±0.07		0.15k	ABLIKIM 25AO	BES3	e^+e^- at 3.773 GeV
2.16±0.53±0.07			YELTON 11	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.91±0.51±0.13		32	[1] ABLIKIM 18R	BES3	e^+e^- at 3.773 GeV
<3.5	90		MITCHELL 09B	CLEO	See YELTON 11

[1] Superseded by ABLIKIM 25AO. NODE=S031C35;LINKAGE=A

$\Gamma(\eta'(958)\mu^+\nu_\mu)/\Gamma_{total}$ Γ_{57}/Γ

NODE=S031Q45
NODE=S031Q45

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
1.92±0.28±0.08	90	ABLIKIM 25AO	BES3	e^+e^- at 3.773 GeV

$\Gamma(a(980)^0e^+\nu_e,\ a(980)^0 \to \eta\pi^0)/\Gamma_{total}$ Γ_{58}/Γ

NODE=S031P09
NODE=S031P09

VALUE (units 10^{-4})	EVTS	DOCUMENT ID	TECN	COMMENT
1.66$^{+0.81}_{-0.66}$±0.11	10$^{+5}_{-4}$	[1] ABLIKIM 18F	BES3	e^+e^- at 3773 MeV

[1] Signal observed at 2.9 σ C.L. NODE=S031P09;LINKAGE=A

$\Gamma(K^0_S K^0_S e^+\nu_e)/\Gamma_{total}$ Γ_{59}/Γ

NODE=S031Q07
NODE=S031Q07

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<1.54 × 10^{-5}	90	[1] ABLIKIM 24AZ	BES3	7.9 fb^{-1}, e^+e^- at 3.773 GeV

[1] Includes $D^+ \to a_0(980)^0 e^+\nu_e$, $a_0(980)^0 \to K^0_S K^0_S$ resonant contribution. NODE=S031Q07;LINKAGE=A

$\Gamma(K^0_S \eta e^+\nu_e)/\Gamma_{total}$ Γ_{60}/Γ

NODE=S031Q24
NODE=S031Q24

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
<2.0 × 10^{-4}	90	ABLIKIM 24CM	BES3	e^+e^- at $\sqrt{s}$ = 3.773 GeV

$\Gamma(\eta\eta e^+\nu_e)/\Gamma_{total}$ Γ_{61}/Γ

NODE=S031Q25
NODE=S031Q25

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.0 × 10^{-4}	90	ABLIKIM	24CM	BES3	e^+e^- at $\sqrt{s}$ = 3.773 GeV

$\Gamma(K^+K^-e^+\nu_e)/\Gamma_{total}$ Γ_{62}/Γ

NODE=S031Q08
NODE=S031Q08

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.10 × 10^{-5}	90	[1] ABLIKIM	24AZ	BES3	7.9 fb^{-1},e^+e^- at 3.773 GeV

[1] Includes $D^+ \rightarrow a_0(980)^0 e^+\nu_e$, $a_0(980)^0 \rightarrow K^+K^-$ resonant contribution.

NODE=S031Q08;LINKAGE=A

$\Gamma(b_1(1235)^0 e^+\nu_e,\ b_1^0 \rightarrow \omega\pi^0)/\Gamma_{total}$ Γ_{63}/Γ

NODE=S031P60
NODE=S031P60

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.75 × 10^{-4}	90	ABLIKIM	20AF	BES3	e^+e^-, 3773 MeV

$\Gamma(\phi e^+\nu_e)/\Gamma_{total}$ Γ_{64}/Γ

NODE=S031R96

Unseen decay modes of the ϕ are included.

NODE=S031R96
NODE=S031R96

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10^{-5}	90	ABLIKIM	15W	BES3	292 fb^{-1}, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.9 × 10^{-4}	90	YELTON	11	CLEO	e^+e^- at $\psi(3770)$
<1.6 × 10^{-4}	90	MITCHELL	09B	CLEO	See YELTON 11
<0.0201	90	ABLIKIM	06P	BES2	e^+e^- at 3773 MeV
<0.0209	90	BAI	91	MRK3	$e^+e^- \approx$ 3.77 GeV

$\Gamma(D^0 e^+\nu_e)/\Gamma_{total}$ Γ_{65}/Γ

NODE=S031P08
NODE=S031P08

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.0 × 10^{-4}	90	ABLIKIM	17AD	BES3	e^+e^- at 3.773 GeV

Hadronic modes with a $\overline{K}$ or $\overline{K}K\overline{K}$

NODE=S031320

$\Gamma(K_S^0\pi^+)/\Gamma_{total}$ Γ_{66}/Γ

NODE=S031S12
NODE=S031S12

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.554±0.033 OUR FIT Error includes scale factor of 1.8. [(1.561 ± 0.031) × 10^{-2} OUR 2025 FIT Scale factor = 1.7]					
1.591±0.006±0.030	94k	ABLIKIM	18W	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.526±0.022±0.038		[1] DOBBS	07	CLEO	See MENDEZ 10
1.55 ±0.05 ±0.06	2.2k	[1] HE	05	CLEO	See DOBBS 07
1.6 ±0.3 ±0.1	161	ADLER	88C	MRK3	e^+e^- 3.77 GeV

NEW

[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.

NODE=S031S12;LINKAGE=HE

$\Gamma(K_S^0\pi^+)/\Gamma(K^-2\pi^+)$ Γ_{66}/Γ_{68}

NODE=S031R27
NODE=S031R27

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.167 ±0.004 OUR FIT Error includes scale factor of 2.4. [0.167 ± 0.004 OUR 2025 FIT Scale factor = 2.4]					
0.162 ±0.009 OUR AVERAGE Error includes scale factor of 4.5.					
0.171 ±0.002 ±0.002		BONVICINI	14	CLEO	All CLEO-c runs
0.1530±0.0023±0.0016	10.6k	LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.1682±0.0012±0.0037	30k	MENDEZ	10	CLEO	See BONVICINI 14
0.174 ±0.012 ±0.011	473	[1] BISHAI	97	CLEO	$e^+e^- \approx \Upsilon(4S)$
0.137 ±0.015 ±0.016	264	ANJOS	90C	E691	Photoproduction

NEW

[1] See BISHAI 97 for an isospin analysis of $D^+ \rightarrow \overline{K}\pi$ amplitudes.

NODE=S031R27;LINKAGE=Q7

$\Gamma(K_L^0\pi^+)/\Gamma_{total}$ Γ_{67}/Γ

NODE=S031R01
NODE=S031R01

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.460±0.040±0.035	2023 ± 54	[1] HE	08	CLEO	e^+e^- at $\psi(3770)$

[1] The difference of CLEO $D^+ \rightarrow K_S^0\pi^+$ and $K_L^0\pi^+$ branching fractions over the sum (DOBBS 07 and HE 08) is +0.022 ± 0.016 ± 0.018.

NODE=S031R01;LINKAGE=HE

$\Gamma(K^- 2\pi^+)/\Gamma_{total}$ — Γ_{68}/Γ

NODE=S031R19

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
9.31 ±0.14 OUR FIT Error includes scale factor of 1.4. [(9.38 ± 0.16) × 10^{-2} OUR 2025 FIT Scale factor = 1.6]					
9.224±0.059±0.157		BONVICINI	14	CLEO	All CLEO-c runs
• • • We do not use the following data for averages, fits, limits, etc. • • •					
9.14 ±0.10 ±0.17		[1] DOBBS	07	CLEO	See BONVICINI 14
9.5 ±0.2 ±0.3	15.1k	[1] HE	05	CLEO	See DOBBS 07
9.3 ±0.6 ±0.8	1502	[2] BALEST	94	CLEO	$e^+e^- \approx \Upsilon(4S)$
6.4 $^{+1.5}_{-1.4}$		[3] BARLAG	92C	ACCM	π^- Cu 230 GeV
9.1 ±1.3 ±0.4	1164	ADLER	88C	MRK3	e^+e^- 3.77 GeV
9.1 ±1.9	239	[4] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

NODE=S031R19 NEW

[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05. NODE=S031R19;LINKAGE=HE

[2] BALEST 94 measures the ratio of $D^+ \to K^-\pi^+\pi^+$ and $D^0 \to K^-\pi^+$ branching fractions to be 2.35 ± 0.16 ± 0.16 and uses their absolute measurement of the $D^0 \to K^-\pi^+$ fraction (AKERIB 93). NODE=S031R19;LINKAGE=B

[3] BARLAG 92C computes the branching fraction by topological normalization. NODE=S031R19;LINKAGE=K

[4] SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \to \psi(3770))$ × branching fraction to be 0.38 ± 0.05 nb. We use the MARK-3 (ADLER 88C) value of σ = 4.2 ± 0.6 ± 0.3 nb. NODE=S031R19;LINKAGE=SP

See the related review(s):

Multibody Charm Analyses

$\Gamma((K^-\pi^+)_{S-wave}\pi^+)/\Gamma(K^- 2\pi^+)$ — Γ_{69}/Γ_{68}

NODE=S031R49

This is the "fit fraction" from the Dalitz-plot analysis. The $K^-\pi^+$ S-wave includes a broad scalar κ ($\overline{K}_0^*(700)$), the $\overline{K}_0^*(1430)^0$, and non-resonant background. NODE=S031R49

VALUE	DOCUMENT ID		TECN	COMMENT
0.801 ±0.012 OUR AVERAGE				
0.8024±0.0138±0.0043	[1] LINK	09	FOCS	MIPWA fit, 53k evts
0.838 ±0.038	[2] BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
0.786 ±0.014 ±0.018	AITALA	06	E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.8323±0.0150±0.0008	[3] LINK	07B	FOCS	See LINK 09

NODE=S031R49

[1] This LINK 09 model-independent partial-wave analysis of the $K^-\pi^+$ S-wave slices the $K^-\pi^+$ mass range into 39 bins. NODE=S031R49;LINKAGE=LN

[2] The BONVICINI 08A QMIPWA (quasi-model-independent partial-wave analysis) of the $K^-\pi^+$ S-wave amplitude slices the $K^-\pi^+$ mass range into 26 bins but keeps the Breit-Wigner $\overline{K}_0^*(1430)^0$. NODE=S031R49;LINKAGE=BO

[3] This LINK 07B fit uses a K matrix. The $K^-\pi^+$ S-wave fit fraction given above breaks down into (207.3 ± 25.5 ± 12.4)% isospin-1/2 and (40.5 ± 9.6 ± 3.2)% isospin-3/2 — with large interference between the two. The isospin-1/2 component includes the κ (or $\overline{K}_0^*(700)^0$) and $\overline{K}_0^*(1430)^0$. NODE=S031R49;LINKAGE=LI

$\Gamma(\overline{K}_0^*(700)^0\pi^+, \overline{K}_0^* \to K^-\pi^+)/\Gamma(K^- 2\pi^+)$ — Γ_{70}/Γ_{68}

NODE=S031C7

This is the "fit fraction" from the Dalitz-plot analysis. NODE=S031C7

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.478±0.121±0.053	AITALA	02	E791	See AITALA 06

NODE=S031C7

$\Gamma(\overline{K}_0^*(1430)^0\pi^+, \overline{K}_0^*(1430)^0 \to K^-\pi^+)/\Gamma(K^- 2\pi^+)$ — Γ_{71}/Γ_{68}

NODE=S031B57

This is the "fit fraction" from the Dalitz-plot analysis. NODE=S031B57

VALUE	DOCUMENT ID		TECN	COMMENT
0.1330±0.0062	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.125 ±0.014 ±0.005	AITALA	02	E791	See AITALA 06
0.284 ±0.022 ±0.059	FRABETTI	94G	E687	Dalitz fit, 8800 evts
0.248 ±0.019 ±0.017	ANJOS	93	E691	γ Be 90–260 GeV

NODE=S031B57

$\Gamma\big(\overline{K}^*(892)^0\pi^+ , \overline{K}^*(892)^0 \to K^-\pi^+\big)/\Gamma\big(K^-2\pi^+\big)$ Γ_{72}/Γ_{68}

NODE=S031R88

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031R88
NODE=S031R88

VALUE	DOCUMENT ID		TECN	COMMENT
0.111 ±0.012 OUR AVERAGE	Error includes scale factor of 3.7.			
0.1236±0.0034±0.0034	LINK	09	FOCS	MIPWA fit, 53k evts
0.0988±0.0046	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
0.119 ±0.002 ±0.020	AITALA	06	E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.1361±0.0041±0.0030	[1] LINK	07B	FOCS	See LINK 09
0.123 ±0.010 ±0.009	AITALA	02	E791	See AITALA 06
0.137 ±0.006 ±0.009	FRABETTI	94G	E687	Dalitz fit, 8800 evts
0.170 ±0.009 ±0.034	ANJOS	93	E691	γBe 90–260 GeV
0.14 ±0.04 ±0.04	ALVAREZ	91B	NA14	Photoproduction
0.13 ±0.01 ±0.07	ADLER	87	MRK3	e^+e^- 3.77 GeV

[1] The statistical error on this LINK 07B value is corrected in LINK 09.

NODE=S031R88;LINKAGE=LI

$\Gamma\big(\overline{K}^*(1410)^0\pi^+ , \overline{K}^{*0} \to K^-\pi^+\big)/\Gamma\big(K^-2\pi^+\big)$ Γ_{73}/Γ_{68}

NODE=S031B01
NODE=S031B01

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
not seen	LINK	09	FOCS	MIPWA fit, 53k evts
not seen	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.8±2.1±1.7	LINK	07B	FOCS	See LINK 09

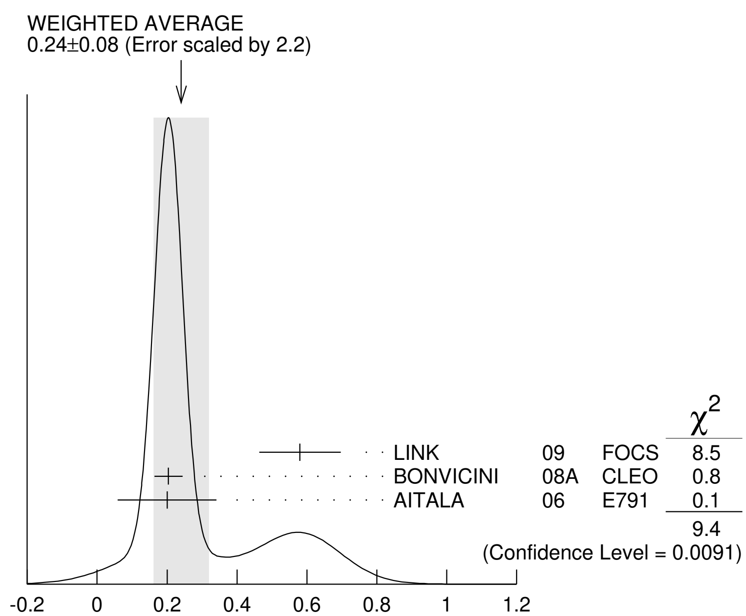
$\Gamma\big(\overline{K}^*_2(1430)^0\pi^+ , \overline{K}^*_2(1430)^0 \to K^-\pi^+\big)/\Gamma\big(K^-2\pi^+\big)$ Γ_{74}/Γ_{68}

NODE=S031C8

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C8
NODE=S031C8

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.24 ±0.08 OUR AVERAGE	Error includes scale factor of 2.2. See the ideogram below.			
0.58 ±0.10 ±0.06	LINK	09	FOCS	MIPWA fit, 53k evts
0.204±0.040	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
0.2 ±0.1 ±0.1	AITALA	06	E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.39 ±0.09 ±0.05	LINK	07B	FOCS	See LINK 09
0.5 ±0.1 ±0.2	AITALA	02	E791	See AITALA 06



$\Gamma\Big(\overline{K}^*_2(1430)^0\pi^+ , \overline{K}^*_2(1430)^0 \to K^-\pi^+\Big)/\Gamma\Big(K^-2\pi^+\Big)$ (units 10^{-2}) Γ_{74}/Γ_{68}

$\Gamma\big(\overline{K}^*(1680)^0\pi^+ , \overline{K}^*(1680)^0 \to K^-\pi^+\big)/\Gamma\big(K^-2\pi^+\big)$ Γ_{75}/Γ_{68}

NODE=S031B58

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B58
NODE=S031B58

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
0.23 ±0.12 OUR AVERAGE				
1.75 ±0.62 ±0.54	LINK	09	FOCS	MIPWA fit, 53k evts
0.196±0.118	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts
1.2 ±0.6 ±1.2	AITALA	06	E791	Dalitz fit, 15.1k events

• • • We do not use the following data for averages, fits, limits, etc. • • •

1.90 ±0.63 ±0.43	LINK	07B	FOCS	See LINK 09
2.5 ±0.7 ±0.3	AITALA	02	E791	See AITALA 06
4.7 ±0.6 ±0.7	FRABETTI	94G	E687	Dalitz fit, 8800 evts
3.0 ±0.4 ±1.3	ANJOS	93	E691	γ Be 90–260 GeV

$\Gamma(K^-(2\pi^+)_{I=2})/\Gamma(K^-2\pi^+)$ Γ_{76}/Γ_{68}

NODE=S031C33
NODE=S031C33

VALUE	DOCUMENT ID		TECN	COMMENT
0.155±0.028	BONVICINI	08A	CLEO	QMIPWA fit, 141k evts

$\Gamma(K^-2\pi^+ \text{ nonresonant})/\Gamma(K^-2\pi^+)$ Γ_{77}/Γ_{68}

NODE=S031S36

This is the "fit fraction" from the Dalitz-plot analysis. Later analyses find little need for this decay mode.

NODE=S031S36

NODE=S031S36

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.130±0.058±0.044	AITALA	02	E791	See AITALA 06
0.998±0.037±0.072	FRABETTI	94G	E687	Dalitz fit, 8800 evts
0.838±0.088±0.275	ANJOS	93	E691	γ Be 90–260 GeV
0.79 ±0.07 ±0.15	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S\pi^+\pi^0)/\Gamma_{\text{total}}$ Γ_{78}/Γ

NODE=S031R20
NODE=S031R20

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.99±0.09±0.25		[1] DOBBS	07	CLEO	See BONVICINI 14
7.2 ±0.2 ±0.4	5.1k	[1] HE	05	CLEO	See DOBBS 07
5.1 ±1.3 ±0.8	159	ADLER	88C	MRK3	e^+e^- 3.77 GeV

[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.

NODE=S031R20;LINKAGE=HE

$\Gamma(K^0_S\pi^+\pi^0)/\Gamma(K^-2\pi^+)$ Γ_{78}/Γ_{68}

NODE=S031P05
NODE=S031P05

VALUE	DOCUMENT ID		TECN	COMMENT
0.785±0.007±0.016	BONVICINI	14	CLEO	All CLEO-c runs

$\Gamma(K^0_S\rho^+)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{79}/Γ_{78}

NODE=S031S15

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S15
NODE=S031S15

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
$83.4\pm2.2^{+7.1}_{-3.6}$	[1] ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

[1] Fit fraction from Dalitz plot analysis of 142k $D^+ \to K^0_S\pi^+\pi^0$ events.

NODE=S031S15;LINKAGE=A

$\Gamma(K^0_S\rho(1450)^+,\ \rho^+\to\pi^+\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{80}/Γ_{78}

NODE=S031S27

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S27
NODE=S031S27

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$2.1\pm0.3^{+1.6}_{-1.9}$	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma(\overline{K}^*(892)^0\pi^+, \overline{K}^*(892)^0\to K^0_S\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{81}/Γ_{78}

NODE=S031S16

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S16
NODE=S031S16

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
$3.58\pm0.17^{+0.39}_{-0.38}$	[1] ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

[1] Fit fraction from Dalitz plot analysis of 142k $D^+ \to K^0_S\pi^+\pi^0$ events.

NODE=S031S16;LINKAGE=A

$\Gamma(\overline{K}^*_0(1430)^0\pi^+,\ \overline{K}^{*0}_0\to K^0_S\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{82}/Γ_{78}

NODE=S031S28

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S28
NODE=S031S28

VALUE (%)	DOCUMENT ID		TECN	COMMENT
3.7±0.6±1.1	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma(\overline{K}^*_0(1680)^0\pi^+,\ \overline{K}^{*0}_0\to K^0_S\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{83}/Γ_{78}

NODE=S031S29

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S29
NODE=S031S29

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$1.3\pm0.2^{+0.9}_{-1.3}$	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma(\overline{\kappa}^0\pi^+,\ \overline{\kappa}^0 \to K^0_S\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ — Γ_{84}/Γ_{78}

NODE=S031S30

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S30
NODE=S031S30

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$7.7\pm1.2^{+6.5}_{-4.8}$	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma(K^0_S\pi^+\pi^0$ nonresonant$)/\Gamma(K^0_S\pi^+\pi^0)$ — Γ_{85}/Γ_{78}

NODE=S031S35

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S35
NODE=S031S35

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
$4.6\pm0.7^{+5.4}_{-5.1}$	[1] ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

[1] Fit fraction from Dalitz plot analysis of 142k $D^+ \to K^0_S\pi^+\pi^0$ events.

NODE=S031S35;LINKAGE=A

$\Gamma(K^0_S\pi^+\pi^0$ nonresonant and $\overline{\kappa}^0\pi^+)/\Gamma(K^0_S\pi^+\pi^0)$ — Γ_{86}/Γ_{78}

NODE=S031S31

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S31
NODE=S031S31

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$18.6\pm1.7^{+2.3}_{-4.6}$	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma((K^0_S\pi^0)_{S-\text{wave}}\pi^+)/\Gamma(K^0_S\pi^+\pi^0)$ — Γ_{87}/Γ_{78}

NODE=S031S32

The numerator here is the coherent sum of the $\overline{K}^*_0(1430)^0\pi^+$, $\overline{\kappa}^0\pi^+$, and nonresonant contributions.

NODE=S031S32

NODE=S031S32

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$17.3\pm1.4^{+3.4}_{-4.3}$	ABLIKIM	14E	BES3	e^+e^- at $\psi(3770)$

$\Gamma(K^0_S\pi^+\omega)/\Gamma_{\text{total}}$ — Γ_{88}/Γ

NODE=S031P73
NODE=S031P73

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$0.707\pm0.041\pm0.029$	523	[1] ABLIKIM	22U	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 22U determines the ratio $B(D^+ \to K^0_S\pi^+\omega)/B(D^0 \to K^-\pi^+\omega) = 0.21 \pm 0.01 \pm 0.01$, in significant tension with statistical isospin model expectation of 0.9.

NODE=S031P73;LINKAGE=A

$\Gamma(K^0_S\pi^+\eta)/\Gamma_{\text{total}}$ — Γ_{89}/Γ

NODE=S031P53
NODE=S031P53

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$12.7\ \pm0.4\ \pm0.3$	1.1k	ABLIKIM	24AS	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$13.09\pm0.37\pm0.31$	1.3k	ABLIKIM	20V	BES3	e^+e^- at 3773 MeV

$\Gamma(K^0_S a_0(980)^+,\ a_0^+ \to \pi^+\eta)/\Gamma(K^0_S\pi^+\eta)$ — Γ_{90}/Γ_{89}

NODE=S031Q26
NODE=S031Q26

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$105.00\pm0.94\pm1.04\pm0.07$	1.1k	[1] ABLIKIM	24AS	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis with two components. The second and third uncertainties are model and experimental systematic uncertainties, respectively.

NODE=S031Q26;LINKAGE=A

$\Gamma(\overline{K}^*_0(1430)^0\pi^+,\ \overline{K}^*_0 \to K^0_S\eta)/\Gamma(K^0_S\pi^+\eta)$ — Γ_{91}/Γ_{89}

NODE=S031Q27
NODE=S031Q27

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$10.83\pm1.50\pm1.27\pm0.08$	1.1k	[1] ABLIKIM	24AS	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis with two components. The second and third uncertainties are model and experimental systematic uncertainties, respectively.

NODE=S031Q27;LINKAGE=A

$\Gamma(K^0_S\pi^+\eta'(958))/\Gamma_{\text{total}}$ — Γ_{92}/Γ

NODE=S031P17
NODE=S031P17

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.90\pm0.17\pm0.13$	267	ABLIKIM	18AC	BES3	e^+e^-, 3773 MeV

$\Gamma(K^-2\pi^+\pi^0)/\Gamma_{\text{total}}$ — Γ_{93}/Γ

NODE=S031R23

See the listings under "$D \to K\pi\pi\pi$ partial wave analyses" and our 2008 Review (Physics Letters **B667** 1 (2008)) for measurements of submodes of this mode.

NODE=S031R23

NODE=S031R23

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.35 ± 0.08 OUR AVERAGE		[$(6.14 \pm 0.16) \times 10^{-2}$ OUR 2016 AVERAGE]			
$6.35\pm0.04\pm0.07$	35.5k	ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s} = 3.773$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$5.98\pm0.08\pm0.16$		[1] DOBBS	07	CLEO	See BONVICINI 14
$6.0\ \pm0.2\ \pm0.2$	4.8k	[1] HE	05	CLEO	See DOBBS 07
$5.8\ \pm1.2\ \pm1.2$	142	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV
$6.3\ ^{+1.4}_{-1.3}\ \pm1.2$	175	BALTRUSAIT...	86E	MRK3	See COFFMAN 92B

NEW

[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05. NODE=S031R23;LINKAGE=HE

$\Gamma\big(\overline{K}^*(892)^0\rho(770)^+,\ \overline{K}^{*0}\to K^-\pi^+,\ \rho^+\to\pi^0\pi^+\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{94}/Γ_{93}

NODE=S031Q49
NODE=S031Q49

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
68.4±1.1±2.6	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q49;LINKAGE=A

$\Gamma\big(\overline{K}_1(1270)^0\pi^+,\ \overline{K}_1^0\to K^-\rho(770)^+,\ \rho^+\to\pi^+\pi^0\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{95}/Γ_{93}

NODE=S031Q50
NODE=S031Q50

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8±0.3±0.3	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q50;LINKAGE=A

$\Gamma\big(\overline{K}_1(1400)^0\pi^+,\ \overline{K}_1^0\to\overline{K}^*(892)\pi,\ \overline{K}^*\to K^-\pi\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{96}/Γ_{93}

NODE=S031Q51
NODE=S031Q51

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.3±0.2±0.3	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q51;LINKAGE=A

$\Gamma\big(\overline{K}(1460)^0\pi^+,\ \overline{K}(1460)^0\to\overline{K}^*(892)\pi,\ \overline{K}^*\to K^-\pi\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{97}/Γ_{93}

NODE=S031Q52
NODE=S031Q52

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.1±0.2±0.3	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q52;LINKAGE=A

$\Gamma\big(\overline{K}^*(1680)^0\pi^+,\ \overline{K}^{*0}\to\overline{K}^*(892)\pi,\ \overline{K}^*\to K^-\pi\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{98}/Γ_{93}

NODE=S031Q53
NODE=S031Q53

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.8±0.4±0.8	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q53;LINKAGE=A

$\Gamma\big((K^-\pi^+)_{S-wave}\rho(770)^+,\ \rho^+\to\pi^+\pi^0\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{99}/Γ_{93}

NODE=S031Q54
NODE=S031Q54

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
18.3±0.7±0.7	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q54;LINKAGE=A

$\Gamma\big(\overline{K}(1460)^0\pi^+,\ \overline{K}(1460)^0\to K^-(\pi^+\pi^0)_{L=1}\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{100}/Γ_{93}

NODE=S031Q55
NODE=S031Q55

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
8.6±0.8±0.5	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q55;LINKAGE=A

$\Gamma\big(\overline{K}(1460)^0\pi^+,\ \overline{K}(1460)^0\to(K^-\pi)_{L=1}\pi\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{101}/Γ_{93}

NODE=S031Q56
NODE=S031Q56

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.4±0.5±0.3	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q56;LINKAGE=A

$\Gamma\big((K^-\rho(770)^+)_{L=1}\pi^+,\ \rho^+\to\pi^+\pi^0\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{102}/Γ_{93}

NODE=S031Q57
NODE=S031Q57

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.8±0.1±0.1	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q57;LINKAGE=A

$\Gamma\big((\overline{K}^*(892)\pi)_{L=1}\pi^+,\ \overline{K}^*\to K^-\pi\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{103}/Γ_{93}

NODE=S031Q58
NODE=S031Q58

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.8±0.1±0.1	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q58;LINKAGE=A

$\Gamma\big((\overline{K}^*(892)^0\pi^+)_{L=1}\pi^0,\ \overline{K}^{*0}\to K^-\pi^+\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ Γ_{104}/Γ_{93}

NODE=S031Q59
NODE=S031Q59

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.8±0.2±0.4	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components. NODE=S031Q59;LINKAGE=A

$\Gamma\big((K^-(\pi^+\pi^0)_{L=0})_{L=1}\pi^+\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ — Γ_{105}/Γ_{93}

NODE=S031Q60

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.8±0.2±0.2	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components.

NODE=S031Q60;LINKAGE=A

$\Gamma\big((K^-\pi^+)_{L=1}\rho(770)^+,\ \rho^+\to\pi^+\pi^0\big)/\Gamma\big(K^-2\pi^+\pi^0\big)$ — Γ_{106}/Γ_{93}

NODE=S031Q61

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.5±0.1±0.1	35.5k	[1] ABLIKIM	25BF	BES3	e^+e^- at $\sqrt{s}=3.773$ GeV

[1] Amplitude analysis of $D^+\to K^-2\pi^+\pi^0$ with 15 components.

NODE=S031Q61;LINKAGE=A

$\Gamma\big(K^-2\pi^+\pi^0\big)/\Gamma\big(K^-2\pi^+\big)$ — Γ_{93}/Γ_{68}

NODE=S031P04

VALUE	DOCUMENT ID		TECN	COMMENT
0.666±0.006±0.014	BONVICINI	14	CLEO	All CLEO-c runs

$\Gamma\big(K^0_S 2\pi^+\pi^-\big)/\Gamma_{\text{total}}$ — Γ_{107}/Γ

NODE=S031R22

See the listings under "$D\to K\pi\pi\pi$ partial wave analyses" and our 2008 Review (Physics Letters **B667** 1 (2008)) for measurements of submodes of this mode.

NODE=S031R22

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.122±0.046±0.096		[1] DOBBS	07	CLEO	See BONVICINI 14
3.2 ±0.1 ±0.2	3.2k	[1] HE	05	CLEO	See DOBBS 07
2.1 $^{+1.0}_{-0.9}$		[2] BARLAG	92C	ACCM	π^- Cu 230 GeV
3.3 ±0.8 ±0.2	168	ADLER	88C	MRK3	e^+e^- 3.77 GeV

[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.

NODE=S031R22;LINKAGE=HE

[2] BARLAG 92C computes the branching fraction by topological normalization.

NODE=S031R22;LINKAGE=K

$\Gamma\big(K^0_S 2\pi^+\pi^-\big)/\Gamma\big(K^-2\pi^+\big)$ — Γ_{107}/Γ_{68}

NODE=S031P06

VALUE	DOCUMENT ID		TECN	COMMENT
0.331±0.004±0.006	BONVICINI	14	CLEO	All CLEO-c runs

$\Gamma\big(K^0_S\pi^+2\pi^0\big)/\Gamma_{\text{total}}$ — Γ_{108}/Γ

NODE=S031P74

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
28.88±0.58±0.69	3.7k	ABLIKIM	23BW	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
29.04±0.62±0.87	3.4k	[1] ABLIKIM	22Y	BES3	e^+e^- at 3.773 GeV

[1] See ABLIKIM 23BW.

NODE=S031P74;LINKAGE=A

$\Gamma\big(K^0_S a_1(1260)^+,\ a_1^+\to\rho(770)^+\pi^0\big)/\Gamma\big(K^0_S\pi^+2\pi^0\big)$ — $\Gamma_{109}/\Gamma_{108}$

NODE=S031Q01

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
30.0±3.6±4.2	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q01;LINKAGE=A

$\Gamma\big(K^0_S a_1(1260)^+,\ a_1^+\to f_0(500)\pi^+,\ f_0\to\pi^0\pi^0\big)/\Gamma\big(K^0_S\pi^+2\pi^0\big)$ — $\Gamma_{110}/\Gamma_{108}$

NODE=S031Q02

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
3.5±1.1±1.9	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q02;LINKAGE=A

$\Gamma\big(\overline{K}_1(1400)^0\pi^+,\ \overline{K}^0_1\to\overline{K}^*(892)^0\pi^0,\ \overline{K}^{*0}\to K^0_S\pi^0\big)/\Gamma\big(K^0_S\pi^+2\pi^0\big)$ — $\Gamma_{111}/\Gamma_{108}$

NODE=S031Q03

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
8.0±1.2±0.4	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q03;LINKAGE=A

$\Gamma\big(\overline{K}^*(892)^0\rho^+,\ \overline{K}^{*0}\to K^0_S\pi^0\big)/\Gamma\big(K^0_S\pi^+2\pi^0\big)$ — $\Gamma_{112}/\Gamma_{108}$

NODE=S031Q04

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
33.6±2.7±1.4	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q04;LINKAGE=A

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^0$ non-resonant, $\overline{K}^{*0}\to K^0_S\pi^0)/\Gamma(K^0_S\pi^+2\pi^0)$ — $\Gamma_{113}/\Gamma_{108}$

NODE=S031Q05

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
9.1±2.0±1.0	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q05;LINKAGE=A

$\Gamma(K^0_S\rho^+\pi^0$ non-resonant$)/\Gamma(K^0_S\pi^+2\pi^0)$ — $\Gamma_{114}/\Gamma_{108}$

NODE=S031Q06

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
16.5±1.6±0.3	[1] ABLIKIM	23BW	BES3	$D^+\to K^0_S\pi^+2\pi^0$

[1] Amplitude analysis of 1.4k $D^+\to K^0_S\pi^+2\pi^0$ events.

NODE=S031Q06;LINKAGE=A

$\Gamma(K^-2\pi^+\eta)/\Gamma_{total}$ — Γ_{115}/Γ

NODE=S031P55

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.35±0.11±0.04	190	ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

$\Gamma(K^0_S\pi^+\pi^0\eta)/\Gamma_{total}$ — Γ_{116}/Γ

NODE=S031P56

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.22±0.24±0.06	50	ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

$\Gamma(K^-3\pi^+\pi^-)/\Gamma(K^-2\pi^+)$ — Γ_{117}/Γ_{68}

NODE=S031R83

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.061±0.005 OUR FIT Error includes scale factor of 1.1.					
0.062±0.008 OUR AVERAGE Error includes scale factor of 1.3.					
0.058±0.002±0.006	2923	LINK	03D	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV
0.077±0.008±0.010	239	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma\approx$ 200 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.09 ±0.01 ±0.01	113	ANJOS	90D	E691	Photoproduction

$\Gamma(\overline{K}^*(892)^0 2\pi^+\pi^-, \overline{K}^*(892)^0\to K^-\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ — $\Gamma_{118}/\Gamma_{117}$

NODE=S031R84

VALUE	DOCUMENT ID		TECN	COMMENT
0.21±0.04±0.06	LINK	03D	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV

$\Gamma(\overline{K}^*(892)^0\rho^0\pi^+, \overline{K}^*(892)^0\to K^-\pi^+)/\Gamma(K^-2\pi^+)$ — Γ_{119}/Γ_{68}

NODE=S031B75

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.016±0.007±0.004	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma\approx$ 200 GeV

$\Gamma(\overline{K}^*(892)^0\rho^0\pi^+, \overline{K}^*(892)^0\to K^-\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ — $\Gamma_{119}/\Gamma_{117}$

NODE=S031C12

VALUE	DOCUMENT ID		TECN	COMMENT
0.40±0.03±0.06	LINK	03D	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV

$\Gamma(\overline{K}^*(892)^0 a_1(1260)^+)/\Gamma(K^-2\pi^+)$ — Γ_{120}/Γ_{68}

NODE=S031C13

Unseen decay modes of the $\overline{K}^*(892)^0$ and $a_1(1260)^+$ are included.

NODE=S031C13

VALUE	DOCUMENT ID		TECN	COMMENT
0.099±0.008±0.018	LINK	03D	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV

$\Gamma(\overline{K}^*(892)^0 2\pi^+\pi^-$ no-ρ, $\overline{K}^*(892)^0\to K^-\pi^+)/\Gamma(K^-2\pi^+)$ — Γ_{121}/Γ_{68}

NODE=S031B73

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.032±0.010±0.008	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma\approx$ 200 GeV

$\Gamma(K^-\rho^0 2\pi^+)/\Gamma(K^-2\pi^+)$ — Γ_{122}/Γ_{68}

NODE=S031B74

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.034±0.009±0.005	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma\approx$ 200 GeV

$\Gamma(K^-\rho^0 2\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ — $\Gamma_{122}/\Gamma_{117}$

NODE=S031C11

VALUE	DOCUMENT ID		TECN	COMMENT
0.30±0.04±0.01	LINK	03D	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV

$\Gamma(K^- 3\pi^+ \pi^- \text{ nonresonant})/\Gamma(K^- 3\pi^+ \pi^-)$ — $\Gamma_{123}/\Gamma_{117}$

NODE=S031B76
NODE=S031B76

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
0.07 ±0.05±0.01		LINK	03D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.026	90	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(K^0_S 2\pi^+ \pi^- \pi^0)/\Gamma_{\text{total}}$ — Γ_{124}/Γ

NODE=S031P75
NODE=S031P75

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
15.28±0.57±0.60	1k	ABLIKIM	22Y	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^0_S \pi^+ 3\pi^0)/\Gamma_{\text{total}}$ — Γ_{125}/Γ

NODE=S031P76
NODE=S031P76

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.54±0.44±0.32	285	ABLIKIM	22Y	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^- 2\pi^+ 2\pi^0)/\Gamma_{\text{total}}$ — Γ_{126}/Γ

NODE=S031P77
NODE=S031P77

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
4.95±0.26±0.19	756	ABLIKIM	22Y	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^- 3\pi^+ \pi^- \pi^0)/\Gamma_{\text{total}}$ — Γ_{127}/Γ

NODE=S031Q44
NODE=S031Q44

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.57±0.69±0.33	0.16k	ABLIKIM	25BA	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^+ 2K^0_S)/\Gamma_{\text{total}}$ — Γ_{128}/Γ

NODE=S031P02
NODE=S031P02

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
25.4±0.5±1.2	3551	ABLIKIM	17A	BES3	$e^+ e^- \to \psi(3770)$

$\Gamma(K^+ 2K^0_S)/\Gamma(K^- 2\pi^+)$ — Γ_{128}/Γ_{68}

NODE=S031R92
NODE=S031R92

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.035±0.010±0.005	39 ± 9	ALBRECHT	94I	ARG	$e^+ e^- \approx$ 10 GeV
0.085±0.018	70 ± 12	AMMAR	91	CLEO	$e^+ e^- \approx$ 10.5 GeV

$\Gamma(\phi(1020)^0 K^+)/\Gamma_{\text{total}}$ — Γ_{224}/Γ

NODE=S031P46
NODE=S031P46

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.1 × 10^{-5}	90	ABLIKIM	19BI	BES3	$e^+ e^-$ at 3773 MeV

$\Gamma(K^+ K^- K^0_S \pi^+)/\Gamma(K^0_S 2\pi^+ \pi^-)$ — $\Gamma_{129}/\Gamma_{107}$

NODE=S031C4
NODE=S031C4

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
7.7±1.5±0.9	35 ± 7	LINK	01C	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

Pionic modes

NODE=S031325

$\Gamma(\pi^+ \pi^0)/\Gamma_{\text{total}}$ — Γ_{130}/Γ

NODE=S031P16
NODE=S031P16

NEW

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.243±0.033 OUR FIT					
[(1.247 ± 0.033) × 10^{-3} OUR 2025 FIT]					
1.259±0.033±0.023	10k	ABLIKIM	18W	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\pi^+ \pi^0)/\Gamma(K^- 2\pi^+)$ — Γ_{130}/Γ_{68}

NODE=S031B56
NODE=S031B56

NEW

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.34±0.04 OUR FIT					
[(1.33 ± 0.04) × 10^{-2} OUR 2025 FIT Scale factor = 1.1]					
1.31±0.06 OUR AVERAGE					
1.29±0.04±0.05	2649 ± 76	MENDEZ	10	CLEO	$e^+ e^-$ at 3774 MeV
1.33±0.11±0.09	1229 ± 99	AUBERT,B	06F	BABR	$e^+ e^- \approx \Upsilon(4S)$
1.44±0.19±0.10	171 ± 22	ARMS	04	CLEO	$e^+ e^- \approx$ 10 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.33±0.07±0.06	914 ± 46	RUBIN	06	CLEO	See MENDEZ 10

$\Gamma(2\pi^+ \pi^-)/\Gamma_{\text{total}}$ — Γ_{131}/Γ

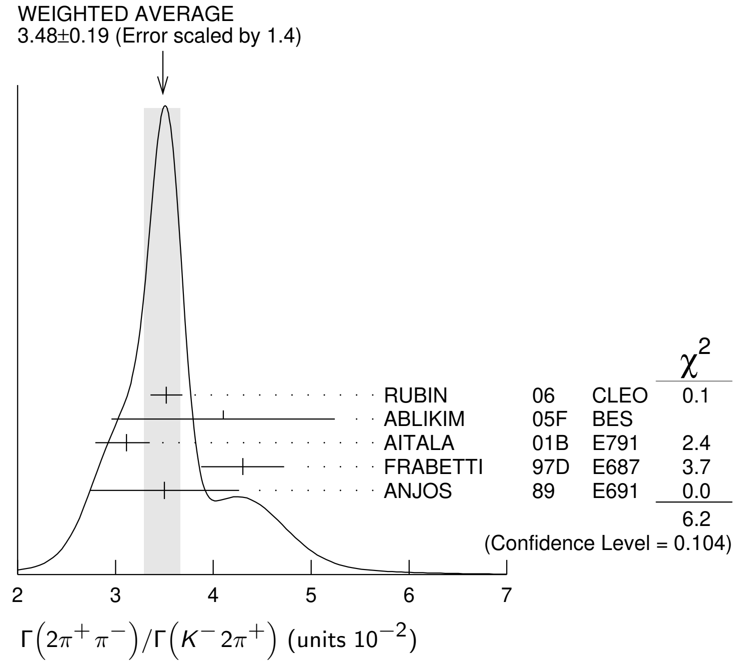
NODE=S031P79
NODE=S031P79

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
32.7±0.7±0.5	2.6k	ABLIKIM	22BG	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(2\pi^+\pi^-)/\Gamma(K^-2\pi^+)$ Γ_{131}/Γ_{68}

NODE=S031R30
NODE=S031R30

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.48±0.19 OUR AVERAGE	Error includes scale factor of 1.4. See the ideogram below.				
3.52±0.11±0.12	3303 ± 95	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
4.1 ±1.1 ±0.3	85 ± 22	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
$3.11\pm0.18^{+0.16}_{-0.26}$	1172	AITALA	01B	E791	π^- nucleus, 500 GeV
4.3 ±0.3 ±0.3	236	FRABETTI	97D	E687	γ Be $\approx$ 200 GeV
3.5 ±0.7 ±0.3	83	ANJOS	89	E691	Photoproduction



$\Gamma(\rho^0\pi^+)/\Gamma(2\pi^+\pi^-)$ $\Gamma_{132}/\Gamma_{131}$

NODE=S031B81

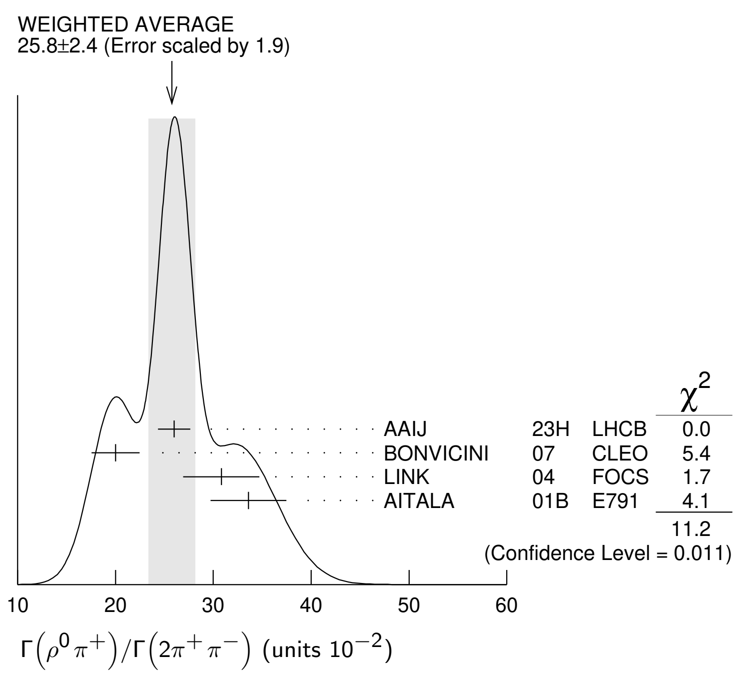
This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B81
NODE=S031B81

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
25.8 ±2.4 OUR AVERAGE	Error includes scale factor of 1.9. See the ideogram below.				
26 ±0.3 ±1.6 ±0.3	572k	[1] AAIJ	23H	LHCB	Dalitz plot fit
20.0 ±2.3 ±0.9		BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
30.82±3.14±2.30		LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts
33.6 ±3.2 ±2.2		AITALA	01B	E791	Dalitz fit, 1172 evts

[1] The last error reflects the uncertainty on the amplitude model.

NODE=S031B81;LINKAGE=B



$\Gamma(\pi^+(\pi^+\pi^-)_{S-wave})/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{133}/\Gamma_{131}$

NODE=S031S17

This is the "fit fraction" from the Dalitz-plot analysis. See also the next three data blocks.

NODE=S031S17

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
61.5 ±0.9 OUR AVERAGE					
61.8 ±0.5 ±0.6 ±0.5	572k	[1,2] AAIJ	23H	LHCB	Dalitz plot fit
56.00±3.24±2.14		[3] LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts

NODE=S031S17

[1] AAIJ 23H parameterise the $\pi^+\pi^-$ S-wave using one complex number per bin in 50 bins of $\pi^+\pi^-$ invariant mass. NODE=S031S17;LINKAGE=A

[2] The last error reflects the uncertainty on the amplitude model. NODE=S031S17;LINKAGE=B

[3] LINK 04 borrows a K-matrix parametrization from ANISOVICH 03 of the full π-π S-wave isoscalar scattering amplitude to describe the $\pi^+\pi^-$ S-wave component of the $\pi^+\pi^+\pi^-$ state. The fit fraction given above is a sum over five f_0 mesons, the $f_0(980)$, $f_0(1300)$, $f_0(1200\text{–}1600)$, $f_0(1500)$, and $f_0(1750)$. See LINK 04 for details and discussion. NODE=S031S17;LINKAGE=LI

$\Gamma(\sigma\pi^+, \sigma\to\pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{134}/\Gamma_{131}$

NODE=S031B97

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B97

NODE=S031B97

VALUE	DOCUMENT ID		TECN	COMMENT
0.422±0.027 OUR AVERAGE				
0.418±0.014±0.025	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.463±0.090±0.021	AITALA	01B	E791	Dalitz fit, 1172 evts

$\Gamma(f_0(980)\pi^+,\ f_0\to\pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{135}/\Gamma_{131}$

NODE=S031B98

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B98

NODE=S031B98

VALUE	DOCUMENT ID		TECN	COMMENT
0.048±0.010 OUR AVERAGE Error includes scale factor of 1.3.				
0.041±0.009±0.003	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.062±0.013±0.004	AITALA	01B	E791	Dalitz fit, 1172 evts

$\Gamma(f_0(1370)\pi^+,\ f_0\to\pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{136}/\Gamma_{131}$

NODE=S031C1

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C1

NODE=S031C1

VALUE	DOCUMENT ID		TECN	COMMENT
0.024±0.013 OUR AVERAGE				
0.026±0.018±0.006	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.023±0.015±0.008	AITALA	01B	E791	Dalitz fit, 1172 evts

$\Gamma(\omega\pi^+,\ \omega\to\pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{137}/\Gamma_{131}$

NODE=S031P97

NODE=S031P97

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.03±0.08±0.14±0.02	572k	[1] AAIJ	23H	LHCB	Dalitz plot fit

[1] The last error reflects the uncertainty on the amplitude model. NODE=S031P97;LINKAGE=A

$\Gamma(f_2(1270)\pi^+,\ f_2\to\pi^+\pi^-)/\Gamma(2\pi^+\pi^-)$ — $\Gamma_{138}/\Gamma_{131}$

NODE=S031B99

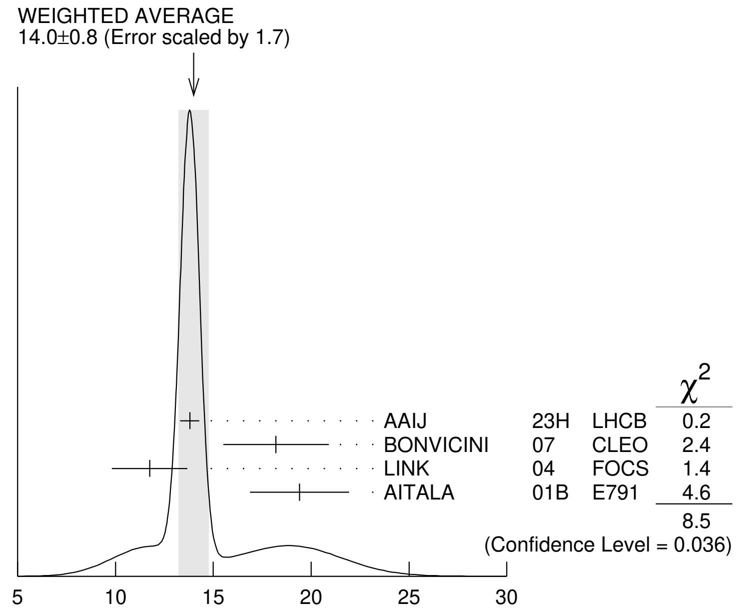
This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B99

NODE=S031B99

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
14.0 ±0.8 OUR AVERAGE Error includes scale factor of 1.7. See the ideogram below.					
13.8 ±0.2 ±0.4 ±0.2	572k	[1] AAIJ	23H	LHCB	Dalitz plot fit
18.2 ±2.6 ±0.7		BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
11.74±1.90±0.29		LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts
19.4 ±2.5 ±0.4		AITALA	01B	E791	Dalitz fit, 1172 evts

[1] The last error reflects the uncertainty on the amplitude model. NODE=S031B99;LINKAGE=A



$\Gamma\big(f_2(1270)\pi^+,\ f_2 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ (units 10^{-2})

$\Gamma\big(\rho(1450)^0\pi^+,\ \rho^0 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{139}/\Gamma_{131}$

NODE=S031C2

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C2
NODE=S031C2

VALUE (units 10^{-2})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
5.4±0.4±1.3±0.8		572k	[1] AAIJ	23H	LHCB	Dalitz plot fit
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<2.4	95		BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.7±0.7±0.3			AITALA	01B	E791	Dalitz fit, 1172 evts

[1] The last error reflects the uncertainty on the amplitude model.

NODE=S031C2;LINKAGE=A

$\Gamma\big(\rho(1700)^0\pi^+,\ \rho^0 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{140}/\Gamma_{131}$

NODE=S031P98
NODE=S031P98

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.7±0.5±1.0±1.0	572k	[1] AAIJ	23H	LHCB	Dalitz plot fit

[1] The last error reflects the uncertainty on the amplitude model.

NODE=S031P98;LINKAGE=A

$\Gamma\big(f_0(1500)\pi^+,\ f_0 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{141}/\Gamma_{131}$

NODE=S031C25

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C25
NODE=S031C25

VALUE	DOCUMENT ID		TECN	COMMENT
0.034±0.010±0.008	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts

$\Gamma\big(f_0(1710)\pi^+,\ f_0 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{142}/\Gamma_{131}$

NODE=S031C26

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C26
NODE=S031C26

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.016	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts

$\Gamma\big(f_0(1790)\pi^+,\ f_0 \to \pi^+\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{143}/\Gamma_{131}$

NODE=S031C27

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C27
NODE=S031C27

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.02	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts

$\Gamma\big((\pi^+\pi^+)_{S\text{-wave}}\pi^-\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{144}/\Gamma_{131}$

NODE=S031C28

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C28
NODE=S031C28

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.037	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts

$\Gamma\big(2\pi^+\pi^-\text{ nonresonant}\big)/\Gamma\big(2\pi^+\pi^-\big)$ $\Gamma_{145}/\Gamma_{131}$

NODE=S031B82

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031B82
NODE=S031B82

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.035	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.078±0.060±0.027		AITALA	01B	E791	Dalitz fit, 1172 evts

$\Gamma(\pi^+ 2\pi^0)/\Gamma_{total}$ — Γ_{146}/Γ

NODE=S031P80

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
46.1±1.2±0.9	2k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(\pi^+ 2\pi^0)/\Gamma(K^- 2\pi^+)$ — Γ_{146}/Γ_{68}

NODE=S031C23

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.0±0.3±0.3	1535 ± 89	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\pi^+ 3\pi^0)/\Gamma_{total}$ — Γ_{148}/Γ

NODE=S031P82

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
41.7±2.2±1.3	570	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(2\pi^+ \pi^- \pi^0)/\Gamma_{total}$ — Γ_{147}/Γ

NODE=S031P81

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
116.5±2.1±2.1	4.6k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(2\pi^+ \pi^- \pi^0)/\Gamma(K^- 2\pi^+)$ — Γ_{147}/Γ_{68}

NODE=S031R63

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
12.4±0.5±0.6	5701 ± 205	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\pi^+ 4\pi^0)/\Gamma_{total}$ — Γ_{149}/Γ

NODE=S031P86

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
19.5±3.6±2.3	57	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(2\pi^+ \pi^- 2\pi^0)/\Gamma_{total}$ — Γ_{150}/Γ

NODE=S031P84

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
107.4±4.0±3.0	1.2k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(3\pi^+ 2\pi^-)/\Gamma_{total}$ — Γ_{151}/Γ

NODE=S031P83

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
18.2±1.1±1.0	460	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(3\pi^+ 2\pi^-)/\Gamma(K^- 2\pi^+)$ — Γ_{151}/Γ_{68}

NODE=S031R62

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.76±0.17 OUR FIT					
[(1.77 ± 0.17) × 10^{-2} OUR 2025 FIT]					
1.73±0.20±0.17	732 ± 77	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.3 ±0.4 ±0.2	58	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma \approx$ 200 GeV

NEW

$\Gamma(3\pi^+ 2\pi^-)/\Gamma(K^- 3\pi^+ \pi^-)$ — $\Gamma_{151}/\Gamma_{117}$

NODE=S031C9

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.289±0.019 OUR FIT					
0.290±0.017±0.011	835	LINK	03D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(2\pi^+ \pi^- 3\pi^0)/\Gamma_{total}$ — Γ_{152}/Γ

NODE=S031P89

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
34.2±3.1±1.6	186	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(3\pi^+ 2\pi^- \pi^0)/\Gamma_{total}$ — Γ_{153}/Γ

NODE=S031P88

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
23.4±2.2±1.5	183	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(\eta\pi^+)/\Gamma_{total}$ — Γ_{154}/Γ

NODE=S031R03

Unseen decay modes of the η are included.

NODE=S031R03

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
37.5 ±0.9 OUR FIT					
[(37.7 ± 0.9) × 10^{-4} OUR 2025 FIT]					
37.90±0.70±0.68	12k	ABLIKIM	18W	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
30.7 ±2.2 ±1.3	258	ABLIKIM	16D	BES3	e^+e^- at 3773 MeV
34.3 ±1.4 ±1.7	1033 ± 42	ARTUSO	08	CLEO	See MENDEZ 10

NEW

$\Gamma(\eta\pi^+)/\Gamma(K^-2\pi^+)$ — Γ_{154}/Γ_{68}

NODE=S031R64

Unseen decay modes of the η are included.

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.03±0.10 OUR FIT Error includes scale factor of 1.1. [$(4.02 \pm 0.11) \times 10^{-2}$ OUR 2025 FIT Scale factor = 1.1]					
3.87±0.09±0.19	2940 ± 68	MENDEZ	10	CLEO	e^+e^- at 3774 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.81±0.26±0.21	377 ± 26	RUBIN	06	CLEO	See ARTUSO 08

NEW

$\Gamma(\eta\pi^+\pi^0)/\Gamma_{total}$ — Γ_{155}/Γ

NODE=S031R05

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
20.5±3.5 OUR AVERAGE Error includes scale factor of 2.2.					
22.3±1.5±1.0	381	ABLIKIM	20G	BES3	e^+e^-, 3773 MeV
13.8±3.1±1.6	149 ± 34	ARTUSO	08	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
24.7±9.3±1.6	42	ABLIKIM	20AA	BES3	e^+e^-, 3773 MeV

$\Gamma(\rho(770)^+\eta,\ \rho^+\to\pi^+\pi^0)/\Gamma(\eta\pi^+\pi^0)$ — $\Gamma_{156}/\Gamma_{155}$

NODE=S031Q14

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
9.3±3.0±2.1	[1] ABLIKIM	24CL	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis involving six modes.

NODE=S031Q14;LINKAGE=A

$\Gamma(a_0(980)^+\pi^0,\ a_0^+\to\pi^+\eta)/\Gamma(\eta\pi^+\pi^0)$ — $\Gamma_{157}/\Gamma_{155}$

NODE=S031Q15

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
43.7±5.6±1.9	[1] ABLIKIM	24CL	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis involving six modes.

NODE=S031Q15;LINKAGE=A

$\Gamma(a_0(980)^0\pi^+,\ a_0^0\to\pi^0\eta)/\Gamma(\eta\pi^+\pi^0)$ — $\Gamma_{158}/\Gamma_{155}$

NODE=S031Q16

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
17.0±4.4±1.7	[1] ABLIKIM	24CL	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis involving six modes.

NODE=S031Q16;LINKAGE=A

$\Gamma(a_2(1700)^+\pi^0,\ a_2^+\to\pi^+\eta)/\Gamma(\eta\pi^+\pi^0)$ — $\Gamma_{159}/\Gamma_{155}$

NODE=S031Q17

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
4.2±2.1±0.7	[1] ABLIKIM	24CL	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis involving six modes.

NODE=S031Q17;LINKAGE=A

$\Gamma(a_0(1450)^+\pi^0,\ a_0^+\to\pi^+\eta)/\Gamma(\eta\pi^+\pi^0)$ — $\Gamma_{160}/\Gamma_{155}$

NODE=S031Q18

VALUE (units 10^{-2})	DOCUMENT ID		TECN	COMMENT
7.0±2.8±0.7	[1] ABLIKIM	24CL	BES3	e^+e^- at 3.773 GeV

[1] Amplitude analysis involving six modes.

NODE=S031Q18;LINKAGE=A

$\Gamma(\eta 2\pi^+\pi^-)/\Gamma_{total}$ — Γ_{161}/Γ

NODE=S031P57

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.41±0.17±0.10	515	ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

$\Gamma(\eta\pi^+2\pi^0)/\Gamma_{total}$ — Γ_{162}/Γ

NODE=S031P58

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.20±0.28±0.17	190	ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

$\Gamma(\eta\pi^+3\pi^0)/\Gamma_{total}$ — Γ_{163}/Γ

NODE=S031P87

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
28.9±4.0±2.2	80	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(\eta 2\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{164}/Γ

NODE=S031P85

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
38.8±3.2±1.2	190	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$\Gamma(\eta\eta\pi^+)/\Gamma_{total}$ — Γ_{165}/Γ

NODE=S031P59

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
29.6±2.4±1.0	179	ABLIKIM	20G	BES3	e^+e^-, 3773 MeV

$\Gamma(\omega\pi^+)/\Gamma_{total}$ — Γ_{166}/Γ NODE=S031C24

Unseen decay modes of the ω are included. NODE=S031C24

NODE=S031C24

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
2.79±0.57±0.16		79	ABLIKIM	16D	BES3	e^+e^- at 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<3.4	90		RUBIN	06	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\omega\pi^+\pi^0)/\Gamma_{total}$ — Γ_{167}/Γ NODE=S031P61

NODE=S031P61

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.87±0.83±0.25	233	[1] ABLIKIM	20AA	BES3	e^+e^-, 3773 MeV

[1] ABLIKIM 20AA reports a statistical significance of 7.7 σ for this measurement. NODE=S031P61;LINKAGE=A

$\Gamma(\eta'(958)\pi^+)/\Gamma_{total}$ — Γ_{168}/Γ NODE=S031R04

Unseen decay modes of the $\eta'(958)$ are included. NODE=S031R04

NODE=S031R04

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
49.6±1.8 OUR FIT [$(49.7 \pm 1.9) \times 10^{-4}$ OUR 2025 FIT] NEW					
51.2±1.4±2.1	3.1k	ABLIKIM	18W	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
44.2±2.5±2.9	352 ± 20	ARTUSO	08	CLEO	See MENDEZ 10

$\Gamma(\eta'(958)\pi^+)/\Gamma(K^-2\pi^+)$ — Γ_{168}/Γ_{68} NODE=S031S10

Unseen decay modes of the $\eta'(958)$ are included. NODE=S031S10

NODE=S031S10

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.33±0.20 OUR FIT [$(5.30 \pm 0.21) \times 10^{-2}$ OUR 2025 FIT] NEW					
5.12±0.17±0.25	1037 ± 35	MENDEZ	10	CLEO	e^+e^- at 3774 MeV

$\Gamma(\eta'(958)\pi^+\pi^0)/\Gamma_{total}$ — Γ_{169}/Γ NODE=S031R06

Unseen decay modes of the $\eta'(958)$ are included. NODE=S031R06

NODE=S031R06

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
15.7±4.3±2.5	33 ± 9	ARTUSO	08	CLEO	e^+e^- at $\psi(3770)$

Hadronic modes with a $K\overline{K}$ pair NODE=S031330

$\Gamma(K^0_S K^+)/\Gamma_{total}$ — Γ_{170}/Γ NODE=S031R07

NODE=S031R07

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.02 ±0.09 OUR FIT Error includes scale factor of 2.2. [$(3.04 \pm 0.09) \times 10^{-3}$ OUR 2025 FIT Scale factor = 2.2] NEW					
3.183±0.029±0.060	18k	ABLIKIM	18W	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.02 ±0.09 ±0.08	780	ABLIKIM	19M	BES3	See ABLIKIM 18W.
3.14 ±0.09 ±0.08	1971 ± 51	BONVICINI	08	CLEO	See MENDEZ 10

$\Gamma(K^0_S K^+)/\Gamma(K^0_S\pi^+)$ — Γ_{170}/Γ_{66} NODE=S031R26

NODE=S031R26

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.195 ±0.006 OUR FIT Error includes scale factor of 2.8. [0.194 ± 0.006 OUR 2025 FIT Scale factor = 2.8] NEW					
0.1901±0.0024 OUR AVERAGE					
0.1899±0.0011±0.0022	101k±561	WON	09	BELL	e^+e^- at $\Upsilon(4S)$
0.1892±0.0155±0.0073	278 ± 21	ARMS	04	CLEO	$e^+e^- \approx$ 10 GeV
0.1996±0.0119±0.0096	949	LINK	02B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.222 ±0.037 ±0.013	63 ± 10	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
0.222 ±0.041 ±0.019	70	BISHAI	97	CLEO	See ARMS 04
0.25 ±0.04 ±0.02	129	FRABETTI	95	E687	γ Be $\overline{E}_\gamma \approx$ 200 GeV
0.271 ±0.065 ±0.039	69	ANJOS	90C	E691	γ Be
0.317 ±0.086 ±0.048	31	BALTRUSAIT...	85E	MRK3	e^+e^- 3.77 GeV
0.25 ±0.15	6	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

$\Gamma(K^0_S K^+)/\Gamma(K^- 2\pi^+)$ — Γ_{170}/Γ_{68}

NODE=S031B72

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.25±0.09 OUR FIT Error includes scale factor of 2.2. [(3.24 ± 0.09) × 10^{-2} OUR 2025 FIT Scale factor = 2.3]					
3.35±0.06±0.07	5161 ± 86	MENDEZ	10	CLEO	e^+e^- at 3774 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.02±0.18±0.15	949	[1] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

NEW

[1] This LINK 02B result is redundant with a result in the previous datablock.

NODE=S031B72;LINKAGE=LB

$\Gamma(K^0_L K^+)/\Gamma_{total}$ — Γ_{171}/Γ

NODE=S031P29

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.21±0.11±0.11	650	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV

$\Gamma(K^0_S K^+\pi^0)/\Gamma_{total}$ — Γ_{172}/Γ

NODE=S031P28

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.07±0.19±0.23	470	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV

$\Gamma(K^*(892)^+ K^0_S,\ K^{*+} \to K^+\pi^0)/\Gamma(K^0_S K^+\pi^0)$ — $\Gamma_{173}/\Gamma_{172}$

NODE=S031P70

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.571±0.026±0.042	692	[1] ABLIKIM	21AD	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 21AD value is a fit fraction from an amplitude analysis of $D^+ \to K^+ K^0_S \pi^0$ with four components. Reconstructs the $K^*(892)^+$ from its $K^+\pi^0$ final state.

NODE=S031P70;LINKAGE=A

$\Gamma(\overline{K}^*(892)^0 K^+,\ \overline{K}^{*0} \to K^0_S\pi^0)/\Gamma(K^0_S K^+\pi^0)$ — $\Gamma_{174}/\Gamma_{172}$

NODE=S031P71

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.102±0.015±0.022	692	[1] ABLIKIM	21AD	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 21AD value is a fit fraction from an amplitude analysis of $D^+ \to K^+ K^0_S \pi^0$ with four components. Reconstructs the $\overline{K}^*(892)^0$ from its $K^0_S\pi^0$ final state.

NODE=S031P71;LINKAGE=A

$\Gamma(K^*(892)^+ K^0_S)/\Gamma(K^0_S\pi^+)$ — Γ_{175}/Γ_{66}

NODE=S031B63

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

NODE=S031B63

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.1±0.3±0.4	67	FRABETTI	95	E687	γ Be $\overline{E}_\gamma \approx$ 200 GeV

$\Gamma(K^0_L K^+\pi^0)/\Gamma_{total}$ — Γ_{176}/Γ

NODE=S031P30

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.24±0.22±0.22	410	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV

$\Gamma(K^+K^-\pi^+)/\Gamma_{total}$ — Γ_{177}/Γ

NODE=S031C22

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.935±0.017±0.024		[1] DOBBS	07	CLEO	See BONVICINI 14
0.97 ±0.04 ±0.04	1250 ± 40	[1] HE	05	CLEO	See DOBBS 07

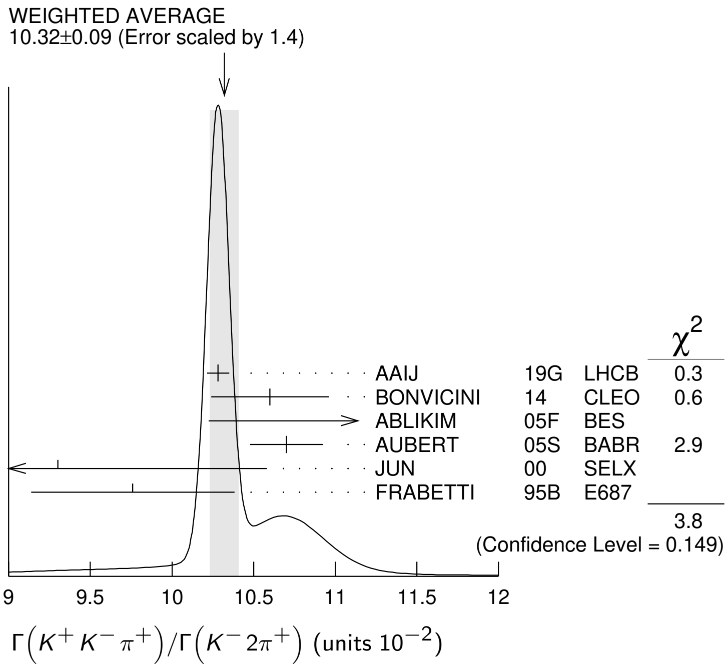
[1] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05.

NODE=S031C22;LINKAGE=HE

$\Gamma(K^+K^-\pi^+)/\Gamma(K^- 2\pi^+)$ — Γ_{177}/Γ_{68}

NODE=S031B67

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
10.32 ±0.09 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.					
10.282±0.002±0.068	23M	AAIJ	19G	LHCB	pp at 8 TeV
10.6 ±0.2 ±0.3		BONVICINI	14	CLEO	All CLEO-c runs
11.7 ±1.3 ±0.7	181 ± 20	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
10.7 ±0.1 ±0.2	43k	AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
9.3 ±1.0 $^{+0.8}_{-0.6}$		JUN	00	SELX	Σ^- nucleus, 600 GeV
9.76 ±0.42 ±0.46		FRABETTI	95B	E687	γ Be, $\overline{E}_\gamma \approx$ 200 GeV



$\Gamma\big(K^+\overline{K}^*(892)^0, \overline{K}^*(892)^0 \to K^-\pi^+\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{178}/\Gamma_{177}$

NODE=S031R29

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031R29
NODE=S031R29

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$25.7\pm0.5^{+0.4}_{-1.2}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$30.1\pm2.0\pm2.5$	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma\big(K^+\overline{K}^*_0(1430)^0, \overline{K}^*_0(1430)^0 \to K^-\pi^+\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{179}/\Gamma_{177}$

NODE=S031S09

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031S09
NODE=S031S09

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$18.8\pm1.2^{+3.3}_{-3.4}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$37.0\pm3.5\pm1.8$	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma\big(K^+\overline{K}^*_2(1430)^0, \overline{K}^*_2 \to K^-\pi^+\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{180}/\Gamma_{177}$

NODE=S031C29

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C29
NODE=S031C29

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$1.7\pm0.4^{+1.2}_{-0.7}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts

$\Gamma\big(K^+\overline{K}^*_0(700), \overline{K}^*_0 \to K^-\pi^+\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{181}/\Gamma_{177}$

NODE=S031C30

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C30
NODE=S031C30

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$7.0\pm0.8^{+3.5}_{-2.0}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts

$\Gamma\big(a_0(1450)^0\pi^+, a^0_0 \to K^+K^-\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{182}/\Gamma_{177}$

NODE=S031C31

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C31
NODE=S031C31

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$4.6\pm0.6^{+7.2}_{-1.8}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts

$\Gamma\big(\phi(1680)\pi^+, \phi \to K^+K^-\big)/\Gamma\big(K^+K^-\pi^+\big)$ $\Gamma_{183}/\Gamma_{177}$

NODE=S031C32

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031C32
NODE=S031C32

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$0.51\pm0.11^{+0.37}_{-0.16}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts

$\Gamma(\phi\pi^+, \phi\to K^+K^-)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{184}/\Gamma_{177}$

NODE=S031R28

This is the "fit fraction" from the Dalitz-plot analysis.

NODE=S031R28
NODE=S031R28

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$27.8\pm0.4^{+0.2}_{-0.5}$	RUBIN	08	CLEO	Dalitz fit, 19,458$\pm$163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$29.2\pm3.1\pm3.0$	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(\phi\pi^+)/\Gamma_{total}$ — Γ_{185}/Γ

NODE=S031P45
NODE=S031P45

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$5.70\pm0.05\pm0.13$	18k	ABLIKIM	19BI	BES3	e^+e^- at 3773 MeV

$\Gamma(K^+K^-\pi^+\pi^0)/\Gamma_{total}$ — Γ_{186}/Γ

NODE=S031P65
NODE=S031P65

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$6.62\pm0.20\pm0.25$	1.3k	ABLIKIM	20AC	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^+K^-\pi^+\pi^0)/\Gamma(K^-2\pi^+\pi^0)$ — Γ_{186}/Γ_{93}

NODE=S031P99
NODE=S031P99

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$11.32\pm0.13\pm0.26$	50k	LI	23G	BELL	e^+e^- at/near Υ(nS), n=1,...,5

$\Gamma(K^0_SK^0_S\pi^+)/\Gamma_{total}$ — Γ_{187}/Γ

NODE=S031P03
NODE=S031P03

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$29.7\pm0.9\pm0.5$	1.2k	ABLIKIM	24CJ	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$27.0\pm0.5\pm1.2$	4897	ABLIKIM	17A	BES3	$e^+e^-\to\psi(3770)$

$\Gamma(K^0_SK^*(892)^+, K^{*+}\to K^0_S\pi^+)/\Gamma(K^0_SK^0_S\pi^+)$ — $\Gamma_{188}/\Gamma_{187}$

NODE=S031Q09
NODE=S031Q09

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$978\pm10\pm4$	1.2k	[1] ABLIKIM	24CJ	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 24CJ reports B($D^+\to K^0_SK^*(892)^+$) = $(8.72\pm0.28\pm0.15)\times10^{-3}$ from an amplitude analysis of $D^+\to K^0_SK^0_S\pi^+$ with two modes, assuming that B($K^*(892)^+\to K^0_S\pi^+$) = 1/3.

NODE=S031Q09;LINKAGE=A

$\Gamma(K^0_S(K^0_S\pi^+)\to K^0_SK^0_S\pi^+)/\Gamma(K^0_SK^0_S\pi^+)$ — $\Gamma_{189}/\Gamma_{187}$

NODE=S031Q28
NODE=S031Q28

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$4.4\pm1.0\pm0.5$	1.2k	[1] ABLIKIM	24CJ	BES3	e^+e^- at 3.773 GeV

[1] From an amplitude analysis of $D^+\to K^0_SK^0_S\pi^+$ with two modes.

NODE=S031Q28;LINKAGE=A

$\Gamma(K^0_SK^0_S\pi^+\pi^0)/\Gamma_{total}$ — Γ_{190}/Γ

NODE=S031P69
NODE=S031P69

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.34\pm0.20\pm0.06$	80	ABLIKIM	20AC	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^0_SK^+\eta)/\Gamma_{total}$ — Γ_{193}/Γ

NODE=S031P54
NODE=S031P54

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.27 ± 0.23 OUR AVERAGE [$(1.9\pm0.5)\times10^{-4}$ OUR 2025 AVERAGE]					
$2.27\pm0.22\pm0.05$	133	[1] ABLIKIM	25AX	BES3	e^+e^- at 3.773 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.85\pm0.52\pm0.08$	14	[2] ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

NEW

[1] ABLIKIM 25AX reconstructs the η via both $\pi^+\pi^-\pi^0$ and $\gamma\gamma$ channels.
[2] Superseded by ABLIKIM 25AX.

NODE=S031P54;LINKAGE=A
NODE=S031P54;LINKAGE=B

$\Gamma(K^+K^0_S\pi^+\pi^-)/\Gamma_{total}$ — Γ_{194}/Γ

NODE=S031P68
NODE=S031P68

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.89\pm0.12\pm0.05$	277	ABLIKIM	20AC	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^+K^0_S\pi^+\pi^-)/\Gamma(K^0_S2\pi^+\pi^-)$ — $\Gamma_{194}/\Gamma_{107}$

NODE=S031C6
NODE=S031C6

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$5.62\pm0.39\pm0.40$	469 ± 32	LINK	01C	FOCS	γ nucleus, $\overline{E}_\gamma\approx$ 180 GeV

$\Gamma(K^0_S K^+ \pi^0 \pi^0)/\Gamma_{\rm total}$ — Γ_{195}/Γ

NODE=S031P66

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
5.8±1.2±0.4	34	ABLIKIM	20AC	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^0_S K^- 2\pi^+)/\Gamma_{\rm total}$ — Γ_{196}/Γ

NODE=S031P67

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
2.27±0.12±0.06	467	ABLIKIM	20AC	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^0_S K^- 2\pi^+)/\Gamma(K^0_S 2\pi^+ \pi^-)$ — $\Gamma_{196}/\Gamma_{107}$

NODE=S031C5

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
7.68±0.41±0.32	670 ± 35	LINK	01C	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(K^+ K^- 2\pi^+ \pi^-)/\Gamma_{\rm total}$ — Γ_{197}/Γ

NODE=S031Q40

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.67±0.11 OUR FIT					
0.66±0.11±0.03	62	ABLIKIM	25AX	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^+ K^- 2\pi^+ \pi^-)/\Gamma(K^- 3\pi^+ \pi^-)$ — $\Gamma_{197}/\Gamma_{117}$

NODE=S031C10

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.19±0.22 OUR FIT					
4.0 ±0.9 ±1.9	38	LINK	03D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(\phi 2\pi^+ \pi^-)/\Gamma_{\rm total}$ — Γ_{198}/Γ

NODE=S031Q41

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
0.54±0.19±0.02	18	ABLIKIM	25AX	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^0_S K^+ \pi^+ \pi^- \pi^0)/\Gamma_{\rm total}$ — Γ_{191}/Γ

NODE=S031Q42

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.51±0.34±0.14	78	ABLIKIM	25AX	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(K^0_S K^+ \omega)/\Gamma_{\rm total}$ — Γ_{192}/Γ

NODE=S031Q43

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.02±0.35±0.10	40	ABLIKIM	25AX	BES3	$e^+ e^-$ at 3.773 GeV

$\Gamma(\phi \pi^+ \pi^0)/\Gamma_{\rm total}$ — Γ_{199}/Γ

NODE=S031B4

Unseen decay modes of the ϕ are included.

NODE=S031B4

VALUE	DOCUMENT ID		TECN	COMMENT
0.023±0.010	[1] BARLAG	92C	ACCM	π^- Cu 230 GeV

[1] BARLAG 92C computes the branching fraction using topological normalization.

NODE=S031B4;LINKAGE=A

$\Gamma(\phi \rho^+)/\Gamma(K^- 2\pi^+)$ — Γ_{200}/Γ_{68}

NODE=S031R91

Unseen decay modes of the ϕ are included.

NODE=S031R91

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.16	90	DAOUDI	92	CLEO	$e^+ e^- \approx$ 10.5 GeV

$\Gamma(K^+ K^- \pi^+ \pi^0 \text{ non-}\phi)/\Gamma_{\rm total}$ — Γ_{201}/Γ

NODE=S031B5

VALUE	DOCUMENT ID		TECN	COMMENT
$0.015^{+0.007}_{-0.006}$	[1] BARLAG	92C	ACCM	π^- Cu 230 GeV

[1] BARLAG 92C computes the branching fraction using topological normalization.

NODE=S031B5;LINKAGE=A

$\Gamma(\rho(770)^+ \gamma)/\Gamma_{\rm total}$ — Γ_{202}/Γ

NODE=S031Q19

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-5}$	90	ABLIKIM	24CX	BES3	$e^+ e^-$ at $\sqrt{s}$ = 3.773 GeV

$\Gamma(K^*(892)^+ \gamma)/\Gamma_{\rm total}$ — Γ_{203}/Γ

NODE=S031Q20

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.8 \times 10^{-5}$	90	ABLIKIM	24CX	BES3	$e^+ e^-$ at $\sqrt{s}$ = 3.773 GeV

$\Gamma(K^+ K^- \pi^+ \pi^0 \text{ non-}\phi)/\Gamma(K^- 2\pi^+)$ — Γ_{201}/Γ_{68}

NODE=S031R67

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.25	90	ANJOS	89E	E691	Photoproduction

Doubly Cabibbo-suppressed modes

NODE=S031335

$\Gamma(K^+\pi^0)/\Gamma_{total}$ — Γ_{204}/Γ

NODE=S031S01

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.54±0.13 OUR FIT Error includes scale factor of 1.4. [(2.08 ± 0.21) × 10^{-4} OUR 2025 FIT Scale factor = 1.4]					
1.49±0.10 OUR AVERAGE [(2.35 ± 0.20) × 10^{-4} OUR 2025 AVERAGE]					
1.45±0.06±0.08	0.63k	ABLIKIM	25CN	BES3	e^+e^-, 3773 MeV
2.52±0.47±0.26	189 ± 37	AUBERT,B	06F	BABR	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
2.32±0.21±0.06	1.8k	ABLIKIM	18W	BES3	Superseded by ABLIKIM 25CN
2.28±0.36±0.17	148 ± 23	DYTMAN	06	CLEO	See MENDEZ 10

$\Gamma(K^+\pi^0)/\Gamma(K^-2\pi^+)$ — Γ_{204}/Γ_{68}

NODE=S031S13

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.65±0.14 OUR FIT Error includes scale factor of 1.4. [(2.21 ± 0.23) × 10^{-3} OUR 2025 FIT Scale factor = 1.5]					
1.9 ±0.2 ±0.1	343 ± 37	MENDEZ	10	CLEO	e^+e^- at 3774 MeV

$\Gamma(K^+\eta)/\Gamma_{total}$ — Γ_{205}/Γ

NODE=S031P14

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.116±0.009 OUR FIT [(0.125 ± 0.016) × 10^{-3} OUR 2025 FIT Scale factor = 1.1]					
0.117±0.010 OUR AVERAGE [(0.151 ± 0.029) × 10^{-3} OUR 2025 AVERAGE]					
0.117±0.010±0.003	0.18k	ABLIKIM	25CN	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.151±0.025±0.014	439	ABLIKIM	18W	BES3	Superseded by ABLIKIM 25CN

$\Gamma(K^+\eta)/\Gamma(\eta\pi^+)$ — $\Gamma_{205}/\Gamma_{154}$

NODE=S031S25

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.10±0.24 OUR FIT [(3.3 ± 0.4)% OUR 2025 FIT Scale factor = 1.1]					
3.06±0.43±0.14	166 ± 23	WON	11	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(K^+\eta'(958))/\Gamma_{total}$ — Γ_{206}/Γ

NODE=S031P15

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
0.188±0.014 OUR FIT [(0.185 ± 0.020) × 10^{-3} OUR 2025 FIT]					
0.188±0.019 OUR AVERAGE [(0.16 ± 0.06) × 10^{-3} OUR 2025 AVERAGE]					
0.188±0.015±0.011	0.21k	ABLIKIM	25CN	BES3	e^+e^-, 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.164±0.051±0.024	87	ABLIKIM	18W	BES3	Superseded by ABLIKIM 25CN

$\Gamma(K^+\eta'(958))/\Gamma(\eta'(958)\pi^+)$ — $\Gamma_{206}/\Gamma_{168}$

NODE=S031S26

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
3.78±0.28 OUR FIT [(3.7 ± 0.4)% OUR 2025 FIT]					
3.77±0.39±0.10	180 ± 19	WON	11	BELL	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(K^+2\pi^0)/\Gamma_{total}$ — Γ_{207}/Γ

NODE=S031P90

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.1±0.4±0.1	43	ABLIKIM	22BK	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^*(892)^+\pi^0)/\Gamma_{total}$ — Γ_{208}/Γ

NODE=S031P92

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$3.4^{+1.4}_{-1.3}$±0.1	17	[1] ABLIKIM	22BK	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 22BK report a 2.7 σ significance for the observation of this decay and assign an upper limit for this branching fraction of 5.4×10^{-4} at 90% CL. In their analysis, ABLIKIM 22BK assume negligible interference between $D^+ \to K^{*+}\pi^0 \to K^+\pi^0\pi^0$ and the non-resonant decay to the same final state.

NODE=S031P92;LINKAGE=A

$\Gamma(K^+\pi^+\pi^-)/\Gamma_{total}$ — Γ_{209}/Γ

NODE=S031Q35

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
4.88±0.08 OUR FIT Error includes scale factor of 1.4.					
4.50±0.12±0.35	2k	ABLIKIM	25BI	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^+\pi^+\pi^-)/\Gamma(K^-2\pi^+)$ — Γ_{209}/Γ_{68}

NODE=S031R33

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
5.236±0.025 OUR FIT					
5.238±0.025 OUR AVERAGE					
5.231±0.009±0.023	795k	AAIJ	19G	LHCB	pp at 8 TeV
5.69 ±0.18 ±0.14	2638 ± 84	KO	09	BELL	e^+e^- at $\Upsilon(4S)$
6.5 ±0.8 ±0.4	189 ± 24	LINK	04F	FOCS	γ A, $\overline{E}_\gamma\approx$ 180 GeV
7.7 ±1.7 ±0.8	59 ± 13	AITALA	97C	E791	π^- A, 500 GeV
7.2 ±2.3 ±1.7	21	FRABETTI	95E	E687	γBe, $\overline{E}_\gamma$= 220 GeV

$\Gamma(K^+\rho^0)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{210}/\Gamma_{209}$

NODE=S031B78

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID		TECN	COMMENT
0.39 ±0.09 OUR AVERAGE				
0.3943±0.0787±0.0815	LINK	04F	FOCS	Dalitz fit, 189 evts
0.37 ±0.14 ±0.07	AITALA	97C	E791	Dalitz fit, 59 evts

$\Gamma(K^+\eta\pi^0)/\Gamma_{total}$ — Γ_{211}/Γ

NODE=S031P91

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.1±0.5±0.1	19	ABLIKIM	22BK	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^*(892)^+\eta)/\Gamma_{total}$ — Γ_{212}/Γ

NODE=S031P93

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$4.4^{+1.8}_{-1.5}\pm0.2$	11	[1] ABLIKIM	22BK	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 22BK report a 3.2 σ significance for the observation of this decay mode. In their analysis, ABLIKIM 22BK assume negligible interference between $D^+\to K^{*+}\eta\to K^+\eta\pi^0$ and the non-resonant decay to the same final state.

NODE=S031P93;LINKAGE=A

$\Gamma(K^*(892)^0\pi^+, K^*(892)^0\to K^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{213}/\Gamma_{209}$

NODE=S031B79

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID		TECN	COMMENT
0.47 ±0.08 OUR AVERAGE				
0.5220±0.0684±0.0638	LINK	04F	FOCS	Dalitz fit, 189 evts
0.35 ±0.14 ±0.01	AITALA	97C	E791	Dalitz fit, 59 evts

$\Gamma(K^+f_0(980), f_0(980)\to\pi^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{214}/\Gamma_{209}$

NODE=S031S05

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID		TECN	COMMENT
0.0892±0.0333±0.0412	LINK	04F	FOCS	Dalitz fit, 189 evts

$\Gamma(K_2^*(1430)^0\pi^+, K_2^*(1430)^0\to K^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{215}/\Gamma_{209}$

NODE=S031S06

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID		TECN	COMMENT
0.0803±0.0372±0.0391	LINK	04F	FOCS	Dalitz fit, 189 evts

$\Gamma(K^+\pi^+\pi^-$ nonresonant$)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{216}/\Gamma_{209}$

NODE=S031B80

This is the "fit fraction" from the Dalitz-plot analysis.

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.36±0.14±0.07	[1] AITALA	97C	E791	Dalitz fit, 59 evts

[1] LINK 04F, with three times as many events, finds no need for a nonresonant amplitude.

NODE=S031B80;LINKAGE=AI

$\Gamma(K^+\pi^+\pi^-\pi^0)/\Gamma_{total}$ — Γ_{217}/Γ

NODE=S031P62

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.21±0.08±0.03	350	[1] ABLIKIM	20Z	BES3	e^+e^- at 3773 MeV

[1] ABLIKIM 20Z subtracted the known branching fractions of $D^+\to K^+\eta$, $D^+\to K^+\phi$, and $D^+\to K^+\omega$ to obtain an estimate of the non-resonant component (ignoring interference effects and possible additional resonant contributions) B($D^+\to K^+\pi^+\pi^-\pi^0$ non-resonant) = $(1.13\pm0.08\pm0.03)\times10^{-3}$.

NODE=S031P62;LINKAGE=A

$\Gamma(K^+\pi^+\pi^-\pi^0)/\Gamma(K^-2\pi^+\pi^0)$ — Γ_{217}/Γ_{93}

NODE=S031Q00

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.68±0.11±0.03	3.6k	LI	23G	BELL	e^+e^- at/near Υ(nS), n=1,...,5

$\Gamma(K^+\pi^+\pi^-\pi^0$ nonresonant$)/\Gamma_{total}$ — Γ_{218}/Γ

NODE=S031P72

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
1.10±0.07 OUR AVERAGE					
1.03±0.12±0.06	112	[1] ABLIKIM	21BB	BES3	e^+e^- at 3.773 GeV
1.13±0.08±0.03	350	[2] ABLIKIM	20Z	BES3	e^+e^- at 3.773 GeV

[1] ABLIKIM 21BB result has subtracted the known branching fractions of $D^+ \to K^+\eta$, $D^+ \to K^+\phi$, and $D^+ \to K^+\omega$ resonances (ignoring interference effects). The result including these components is measured to be B($D^+ \to K^+\pi^+\pi^-\pi^0$) = (1.11 ± 0.12) × 10^{-3}, where the uncertainty is statistical only. NODE=S031P72;LINKAGE=A

[2] ABLIKIM 20Z result has subtracted the known branching fractions of $D^+ \to K^+\eta$, $D^+ \to K^+\phi$, and $D^+ \to K^+\omega$, ignoring interference effects. The result including these components is measured to be (1.21 ± 0.08 ± 0.03) × 10^{-3}. NODE=S031P72;LINKAGE=B

$\Gamma(K^+\pi^+\pi^-\eta)/\Gamma_{total}$ — Γ_{219}/Γ

NODE=S031Q36

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
1.56±0.22±0.04	97	ABLIKIM	25BI	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^+(\pi^+\pi^-\eta)_{non-\eta'})/\Gamma_{total}$ — Γ_{220}/Γ

NODE=S031Q37

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
6.7±1.8±0.2	39	ABLIKIM	25BI	BES3	e^+e^- at 3.773 GeV

$\Gamma(K^+\omega)/\Gamma_{total}$ — Γ_{221}/Γ

NODE=S031P64

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
$5.7^{+2.5}_{-2.1}$±0.2	9	ABLIKIM	20Z	BES3	e^+e^-, 3773 MeV

$\Gamma(K^+\eta\eta)/\Gamma_{total}$ — Γ_{222}/Γ

NODE=S031Q39

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
5.9±2.3±0.2	15	ABLIKIM	25BI	BES3	e^+e^- at 3.773 GeV

$\Gamma(2K^+K^-)/\Gamma_{total}$ — Γ_{223}/Γ

NODE=S031Q38

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	COMMENT
6.09±0.10 OUR FIT	Error includes scale factor of 1.3.				
5.1 ±0.5 ±0.1	0.14k	ABLIKIM	25BI	BES3	e^+e^- at 3.773 GeV

$\Gamma(2K^+K^-)/\Gamma(K^-2\pi^+)$ — Γ_{223}/Γ_{68}

NODE=S031B47

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
6.53 ±0.05 OUR FIT					
6.54 ±0.05 OUR AVERAGE					
6.541±0.025±0.042	134k	AAIJ	19G	LHCB	pp at 8 TeV
9.49 ±2.17 ±0.22	65	[1] LINK	02I	FOCS	γ nucleus, ≈ 180 GeV

[1] LINK 02I finds little evidence for ϕK^+ or $f_0(980)K^+$ submodes. NODE=S031B47;LINKAGE=B

$\Gamma(K^+\phi(1020),\ \phi\to K^+K^-)/\Gamma(2K^+K^-)$ — $\Gamma_{225}/\Gamma_{223}$

NODE=S031P19

VALUE (%)	DOCUMENT ID		TECN	COMMENT
7.1±0.9	[1] AAIJ	19H	LHCB	pp at 8TeV

[1] Fit fraction from a Dalitz plot analysis of $D^+ \to K^+K^+K^-$ decays. The last uncertainty is due to the amplitude model. NODE=S031P19;LINKAGE=A

$\Gamma(K^+(K^+K^-)_{S-wave})/\Gamma(2K^+K^-)$ — $\Gamma_{226}/\Gamma_{223}$

NODE=S031P20

VALUE	DOCUMENT ID		TECN	COMMENT
0.94±0.01	[1] AAIJ	19H	LHCB	pp at 8TeV

[1] Fit fraction from a Dalitz plot analysis of $D^+ \to K^+K^+K^-$ decays. The last uncertainty is due to the amplitude model. NODE=S031P20;LINKAGE=A

Rare or forbidden modes

NODE=S031340

$\Gamma(\pi^+ e^+ e^-)/\Gamma_{total}$ Γ_{227}/Γ

NODE=S031R53

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-6}	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.6 \times 10^{-6}$	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
$<5.9 \times 10^{-6}$	90	[1] RUBIN	10	CLEO	$e^+ e^-$ at $\psi(3770)$
$<7.4 \times 10^{-6}$	90	HE	05A	CLEO	See RUBIN 10
$<5.2 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<1.1 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<6.6 \times 10^{-5}$	90	AITALA	96	E791	$\pi^- N$ 500 GeV
$<2.5 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV
$<2.6 \times 10^{-3}$	90	HAAS	88	CLEO	$e^+ e^-$ 10 GeV

[1] This RUBIN 10 limit is for the $e^+ e^-$ mass in the continuum away from the $\phi(1020)$. See the next data block.

NODE=S031R53;LINKAGE=HE

$\Gamma(\pi^+ \pi^0 e^+ e^-)/\Gamma_{total}$ Γ_{228}/Γ

NODE=S031P10

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.4 × 10^{-5}	90	ABLIKIM	18P	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\pi^+ \phi, \phi \to e^+ e^-)/\Gamma_{total}$ Γ_{229}/Γ

NODE=S031C17

This is *not* a test for the $\Delta C = 1$ weak neutral current, but leads to the $\pi^+ e^+ e^-$ final state.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$(1.7^{+1.4}_{-0.9} \pm 0.1) \times 10^{-6}$	4	[1] RUBIN	10	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$(2.7^{+3.6}_{-1.8} \pm 0.2) \times 10^{-6}$	2	HE	05A	CLEO	See RUBIN 10

[1] This RUBIN 10 result is consistent with the known $D^+ \to \phi\pi^+$ and $\phi \to e^+ e^-$ fractions.

NODE=S031C17;LINKAGE=HE

$\Gamma(\pi^+ \mu^+ \mu^-)/\Gamma_{total}$ Γ_{230}/Γ

NODE=S031R54

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<6.7 × 10^{-8}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<7.3 \times 10^{-8}$	90	AAIJ	13AF	LHCB	pp at 7 TeV
$<6.5 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<3.9 \times 10^{-6}$	90	[1] ABAZOV	08D	D0	$p\overline{p}$, E_{cm} = 1.96 TeV
$<8.8 \times 10^{-6}$	90	LINK	03F	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
$<1.5 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<8.9 \times 10^{-5}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<1.8 \times 10^{-5}$	90	AITALA	96	E791	$\pi^- N$ 500 GeV
$<2.2 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV
$<5.9 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV
$<2.9 \times 10^{-3}$	90	HAAS	88	CLEO	$e^+ e^-$ 10 GeV

[1] This ABAZOV 08D limit is for the $\mu^+ \mu^-$ mass in the continuum away from the $\phi(1020)$. See the next data block.

NODE=S031R54;LINKAGE=AB

$\Gamma(\pi^+ \phi, \phi \to \mu^+ \mu^-)/\Gamma_{total}$ Γ_{231}/Γ

NODE=S031R08

This is *not* a test for the $\Delta C = 1$ weak neutral current, but leads to the $\pi^+ \mu^+ \mu^-$ final state.

VALUE	DOCUMENT ID		TECN	COMMENT
(1.8±0.5±0.6) × 10^{-6}	[1] ABAZOV	08D	D0	$p\overline{p}$, E_{cm} = 1.96 TeV

[1] This ABAZOV 08D value is consistent with the known $D^+ \to \phi\pi^+$ and $\phi \to \mu^+ \mu^-$ fractions.

NODE=S031R08;LINKAGE=AB

$\Gamma(\rho^+ \mu^+ \mu^-)/\Gamma_{total}$ Γ_{232}/Γ

NODE=S031B64

A test for the $\Delta C = 1$ weak neutral current. Allowed by higher-order electroweak interactions.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.6 × 10^{-4}	90	KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(K^+ e^+ e^-)/\Gamma_{total}$ Γ_{233}/Γ

NODE=S031R73

Both quarks would have to change flavor for this decay to occur.

NODE=S031R73
NODE=S031R73

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8.5 × 10^{-7}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<1.0 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<3.0 \times 10^{-6}$	90	RUBIN	10	CLEO	$e^+ e^-$ at $\psi(3770)$
$<6.2 \times 10^{-6}$	90	HE	05A	CLEO	See RUBIN 10
$<2.0 \times 10^{-4}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<2.0 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<4.8 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^+ \pi^0 e^+ e^-)/\Gamma_{total}$ Γ_{234}/Γ

NODE=S031P11
NODE=S031P11

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.5 × 10^{-5}	90	ABLIKIM	18P	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(K^0_S \pi^+ e^+ e^-)/\Gamma_{total}$ Γ_{235}/Γ

NODE=S031P12
NODE=S031P12

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.6 × 10^{-5}	90	ABLIKIM	18P	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(K^0_S K^+ e^+ e^-)/\Gamma_{total}$ Γ_{236}/Γ

NODE=S031P13
NODE=S031P13

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-5}	90	ABLIKIM	18P	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(K^+ \mu^+ \mu^-)/\Gamma_{total}$ Γ_{237}/Γ

NODE=S031R74

Both quarks would have to change flavor for this decay to occur.

NODE=S031R74
NODE=S031R74

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.4 × 10^{-8}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<4.3 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<9.2 \times 10^{-6}$	90	LINK	03F	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
$<4.4 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<9.7 \times 10^{-5}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.2 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV
$<9.2 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\pi^+ e^+ \mu^-)/\Gamma_{total}$ Γ_{238}/Γ

NODE=S031R71

A test of lepton-family-number conservation.

NODE=S031R71
NODE=S031R71

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.1 × 10^{-7}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<2.9 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<1.1 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.3 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\pi^+ e^- \mu^+)/\Gamma_{total}$ Γ_{239}/Γ

NODE=S031R72

A test of lepton-family-number conservation.

NODE=S031R72
NODE=S031R72

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.2 × 10^{-7}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<3.6 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<1.3 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.3 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^+ e^+ \mu^-)/\Gamma_{total}$ Γ_{240}/Γ

NODE=S031R75

A test of lepton-family-number conservation.

NODE=S031R75
NODE=S031R75

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<7.5 × 10^{-8}	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp

• • • We do not use the following data for averages, fits, limits, etc. • • •

$<1.2 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<1.3 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.4 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^+ e^- \mu^+)/\Gamma_{total}$ Γ_{241}/Γ

NODE=S031R76

A test of lepton-family-number conservation.

NODE=S031R76
NODE=S031R76

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.0 \times 10^{-7}$	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.8 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<1.2 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.4 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\pi^- 2e^+)/\Gamma_{total}$ Γ_{242}/Γ

NODE=S031R77

A test of lepton-number conservation.

NODE=S031R77
NODE=S031R77

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.3 \times 10^{-7}$	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.9 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<1.1 \times 10^{-6}$	90	RUBIN	10	CLEO	$e^+ e^-$ at $\psi(3770)$
$<3.6 \times 10^{-6}$	90	HE	05A	CLEO	See RUBIN 10
$<9.6 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<1.1 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<4.8 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\pi^- 2\mu^+)/\Gamma_{total}$ Γ_{243}/Γ

NODE=S031R78

A test of lepton-number conservation.

NODE=S031R78
NODE=S031R78

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.4 \times 10^{-8}$	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.2 \times 10^{-8}$	90	AAIJ	13AF	LHCB	pp at 7 TeV
$<2.0 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<4.8 \times 10^{-6}$	90	LINK	03F	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
$<1.7 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<8.7 \times 10^{-5}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<2.2 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV
$<6.8 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\pi^- e^+ \mu^+)/\Gamma_{total}$ Γ_{244}/Γ

NODE=S031R79

A test of lepton-number conservation.

NODE=S031R79
NODE=S031R79

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-7}$	90	AAIJ	21T	LHCB	1.6 fb^{-1} pp
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.0 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
$<5.0 \times 10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<1.1 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.7 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(\rho^- 2\mu^+)/\Gamma_{total}$ Γ_{245}/Γ

NODE=S031B65

A test of lepton-number conservation.

NODE=S031B65
NODE=S031B65

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.6 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(K^- 2e^+)/\Gamma_{total}$ Γ_{246}/Γ

NODE=S031R80

A test of lepton-number conservation.

NODE=S031R80
NODE=S031R80

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<0.9 \times 10^{-6}$	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<3.5 \times 10^{-6}$	90	RUBIN	10	CLEO	$e^+ e^-$ at $\psi(3770)$
$<4.5 \times 10^{-6}$	90	HE	05A	CLEO	See RUBIN 10
$<1.2 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<9.1 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^0_S \pi^- 2e^+)/\Gamma_{total}$ Γ_{247}/Γ

NODE=S031P22
NODE=S031P22

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.3 \times 10^{-6}$	90	ABLIKIM	19AL	BES3	$e^+ e^-$ at 3773 MeV

$\Gamma(K^- \pi^0 2e^+)/\Gamma_{total}$ Γ_{248}/Γ NODE=S031P23

NODE=S031P23

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8.5 × 10^{-6}	90	ABLIKIM	19AL	BES3	$e^+ e^-$ at 3773 MeV

$\Gamma(K^- 2\mu^+)/\Gamma_{total}$ Γ_{249}/Γ NODE=S031R81

A test of lepton-number conservation. NODE=S031R81

NODE=S031R81

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<10 × 10^{-6}	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.3 \times 10^{-5}$	90	LINK	03F	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
$<1.2 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.2 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV
$<4.3 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^- e^+ \mu^+)/\Gamma_{total}$ Γ_{250}/Γ NODE=S031R82

A test of lepton-number conservation. NODE=S031R82

NODE=S031R82

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.9 × 10^{-6}	90	LEES	11G	BABR	$e^+ e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.3 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<4.0 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^*(892)^- 2\mu^+)/\Gamma_{total}$ Γ_{251}/Γ NODE=S031B66

A test of lepton-number conservation. NODE=S031B66

NODE=S031B66

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8.5 × 10^{-4}	90	KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(\Lambda e^+)/\Gamma_{total}$ Γ_{252}/Γ NODE=S031P48

NODE=S031P48

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.1 × 10^{-6}	90	ABLIKIM	20D	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\overline{\Lambda} e^+)/\Gamma_{total}$ Γ_{253}/Γ NODE=S031P49

NODE=S031P49

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<6.5 × 10^{-7}	90	ABLIKIM	20D	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\Sigma^0 e^+)/\Gamma_{total}$ Γ_{254}/Γ NODE=S031P50

NODE=S031P50

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.7 × 10^{-6}	90	ABLIKIM	20D	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\overline{\Sigma}^0 e^+)/\Gamma_{total}$ Γ_{255}/Γ NODE=S031P51

NODE=S031P51

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 10^{-6}	90	ABLIKIM	20D	BES3	$e^+ e^-$, 3773 MeV

$\Gamma(\overline{n} e^+)/\Gamma_{total}$ Γ_{256}/Γ NODE=S031P94

NODE=S031P94

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.43 × 10^{-5}	90	ABLIKIM	22BJ	BES3	2.93fb^{-1} $e^+ e^-$ at 3.773 GeV

$\Gamma(n e^+)/\Gamma_{total}$ Γ_{257}/Γ NODE=S031P95

NODE=S031P95

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<2.91 × 10^{-5}	90	ABLIKIM	22BJ	BES3	2.93fb^{-1} $e^+ e^-$ at 3.773 GeV

$D^\pm$ CP-VIOLATING DECAY-RATE ASYMMETRIES NODE=S031230

This is the difference between D^+ and D^- partial widths for the decay to state f, divided by the sum of the widths: NODE=S031230

$A_{CP}(f) = [\Gamma(D^+ \to f) - \Gamma(D^- \to \overline{f})]/[\Gamma(D^+ \to f) + \Gamma(D^- \to \overline{f})]$.

$A_{CP}(\mu^\pm \nu)$ in $D^+ \to \mu^+ \nu_\mu$, $D^- \to \mu^- \overline{\nu}_\mu$ NODE=S031A05

NODE=S031A05

VALUE (%)	DOCUMENT ID		TECN	COMMENT
+8±8	EISENSTEIN	08	CLEO	$e^+ e^-$ at $\psi(3770)$

$A_{CP}(K^0_L e^\pm \nu)$ in $D^+ \to K^0_L e^+ \nu_e$, $D^- \to K^0_L e^- \overline{\nu}_e$ NODE=S031A16

NODE=S031A16

VALUE (%)	DOCUMENT ID		TECN	COMMENT
−0.59±0.60±1.48	ABLIKIM	15AF	BES3	$e^+ e^-$ 3773 MeV

$A_{CP}(K^0_S \pi^\pm)$ in $D^\pm \to K^0_S \pi^\pm$

NODE=S031A5
NODE=S031A5

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−0.41 ±0.09 OUR AVERAGE					
−1.1 ±0.6 ±0.2		BONVICINI	14	CLEO	All CLEO-c runs
−0.363±0.094±0.067	1738k	[1] KO	12A	BELL	$e^+ e^- \approx \Upsilon$(nS)
−0.44 ±0.13 ±0.10	807k	DEL-AMO-SA...	11H	BABR	$e^+ e^- \approx \Upsilon(4S)$
−1.6 ±1.5 ±0.9	10.6k	[2] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
−0.71 ±0.19 ±0.20		KO	10	BELL	See KO 12A
−1.3 ±0.7 ±0.3	30k	MENDEZ	10	CLEO	See BONVICINI 14
−0.6 ±1.0 ±0.3		DOBBS	07	CLEO	See MENDEZ 10

[1] KO 12A finds that after subtracting the contribution due to $K^0 - \overline{K}^0$ mixing, the *CP* asymmetry due to the change of charm is $(-0.024 \pm 0.094 \pm 0.067)$%, consistent with zero.

NODE=S031A5;LINKAGE=KO

[2] LINK 02B measures $N(D^+ \to K^0_S \pi^+)/N(D^+ \to K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A5;LINKAGE=A1

$A_{CP}(K^0_L K^\pm)$ in $D^\pm \to K^0_L K^\pm$

NODE=S031A00
NODE=S031A00

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
−4.2±3.2±1.2	650	ABLIKIM	19M	BES3	$e^+ e^-$ at 3773 MeV

$A_{CP}(K^\mp 2\pi^\pm)$ in $D^+ \to K^- 2\pi^+$, $D^- \to K^+ 2\pi^-$

NODE=S031A01
NODE=S031A01

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−0.18±0.16 OUR AVERAGE					
−0.16±0.15±0.09	2.3M	ABAZOV	14L	D0	$p\overline{p}$, $\sqrt{s}$ = 1.96 TeV
−0.3 ±0.2 ±0.4		BONVICINI	14	CLEO	All CLEO-c runs
• • • We do not use the following data for averages, fits, limits, etc. • • •					
−0.1 ±0.4 ±0.9	231k	MENDEZ	10	CLEO	See BONVICINI 14
−0.5 ±0.4 ±0.9		DOBBS	07	CLEO	See MENDEZ 10

$A_{CP}(K^\mp \pi^\pm \pi^\pm \pi^0)$ in $D^+ \to K^- \pi^+ \pi^+ \pi^0$, $D^- \to K^+ \pi^- \pi^- \pi^0$

NODE=S031A02
NODE=S031A02

VALUE (%)	DOCUMENT ID		TECN	COMMENT
−0.3±0.6±0.4	BONVICINI	14	CLEO	All CLEO-c runs
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.0±0.9±0.9	DOBBS	07	CLEO	See BONVICINI 14

$A_{CP}(K^0_S \pi^\pm \pi^0)$ in $D^+ \to K^0_S \pi^+ \pi^0$, $D^- \to K^0_S \pi^- \pi^0$

NODE=S031A03
NODE=S031A03

VALUE (%)	DOCUMENT ID		TECN	COMMENT
−0.1±0.7±0.2	BONVICINI	14	CLEO	All CLEO-c runs
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.3±0.9±0.3	DOBBS	07	CLEO	See BONVICINI 14

$A_{CP}(K^0_S \pi^\pm \eta)$ in $D^\pm \to K^0_S \pi^\pm \eta$

NODE=S031A19
NODE=S031A19

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
−0.9±2.9±1.0	1.3k	ABLIKIM	20V	BES3	$e^+ e^-$, 3773 MeV

$A_{CP}(K^0_S \pi^\pm \pi^+ \pi^-)$ in $D^+ \to K^0_S \pi^+ \pi^+ \pi^-$, $D^- \to K^0_S \pi^- \pi^- \pi^+$

NODE=S031A04
NODE=S031A04

VALUE (%)	DOCUMENT ID		TECN	COMMENT
0.0±1.2±0.3	BONVICINI	14	CLEO	All CLEO-c runs
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.1±1.1±0.6	DOBBS	07	CLEO	See BONVICINI 14

$A_{CP}(K^\pm \pi^+ \pi^- \pi^0)$ in $D^\pm \to K^\pm \pi^+ \pi^- \pi^0$

NODE=S031A21
NODE=S031A21

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.04±0.06±0.01	350	ABLIKIM	20Z	BES3	$e^+ e^-$, 3773 MeV

$A_{CP}(\pi^\pm \pi^0)$ in $D^\pm \to \pi^\pm \pi^0$

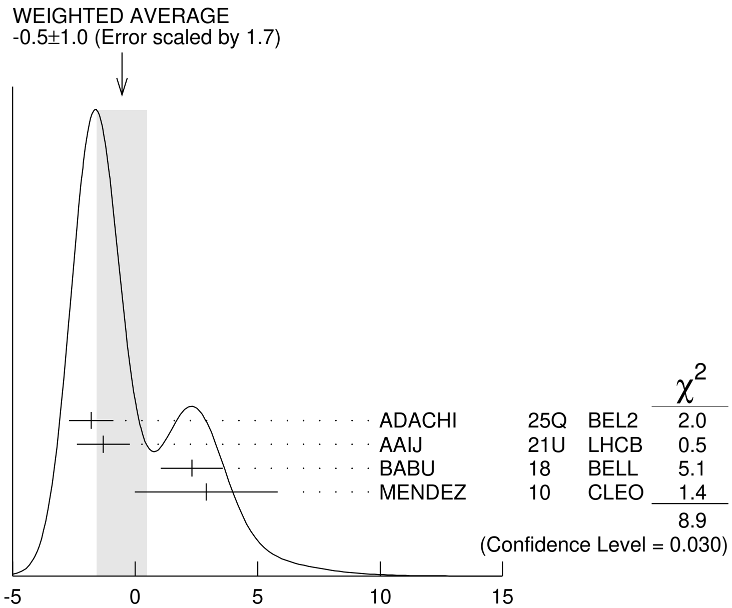
NODE=S031A11
NODE=S031A11

NEW

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−0.5 ±1.0 OUR AVERAGE Error includes scale factor of 1.7. See the ideogram below.					
[(0.4 ± 1.3)% OUR 2025 AVERAGE Scale factor = 1.7]					
−1.8 ±0.9 ±0.1	23.6k	[1] ADACHI	25Q	BEL2	at/near $\Upsilon(4S)$
−1.3 ±0.9 ±0.6	28.7k	AAIJ	21U	LHCB	pp at 7, 8, 13 TeV
2.31±1.24±0.23	108k	BABU	18	BELL	at/near $\Upsilon(4S)$, $\Upsilon(5S)$
2.9 ±2.9 ±0.3	2.6k	MENDEZ	10	CLEO	$e^+ e^-$ at 3774 MeV

[1] D^0 flavour inferred using the information from the charged particles from the rest of the event for 80% of the candidates, and from $D^*(2010)^+ \rightarrow D^+ \pi^0$ decays for the remaining 20%.

NODE=S031A11;LINKAGE=A



$A_{CP}(\pi^\pm \pi^0)$ in $D^\pm \rightarrow \pi^\pm \pi^0$ (%)

$A_{CP}(\pi^\pm \eta)$ in $D^\pm \rightarrow \pi^\pm \eta$

NODE=S031A12
NODE=S031A12

VALUE (%)	*EVTS*		*DOCUMENT ID*		*TECN*	*COMMENT*
0.3 ±0.5 OUR AVERAGE						
0.34±0.66±0.16±0.05	111k	[1]	AAIJ	23E	LHCB	6 fb^{-1}, pp at 13 TeV, $\eta \rightarrow \gamma\pi\pi$
−0.2 ±0.8 ±0.4	32.7k		AAIJ	21U	LHCB	pp at 13 TeV
+1.74±1.13±0.19			WON	11	BELL	$e^+ e^- \approx \Upsilon(4S)$
−2.0 ±2.3 ±0.3	2.9k		MENDEZ	10	CLEO	$e^+ e^-$ at 3774 MeV

[1] The last uncertainty is due to the uncertainty on the CP asymmetry of the control channel, $D^+ \rightarrow \phi \pi^+$.

NODE=S031A12;LINKAGE=A

$A_{CP}(\pi^\pm \pi^0 \eta)$ in $D^\pm \rightarrow \pi^\pm \pi^0 \eta$

NODE=S031A22
NODE=S031A22

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
−5.8±6.6±1.8	381	ABLIKIM	20G	BES3	$e^+ e^-$ at 3.773 GeV

$A_{CP}(\pi^\pm \eta\eta)$ in $D^\pm \rightarrow \pi^\pm \eta\eta$

NODE=S031A23
NODE=S031A23

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
8.0±8.3±1.9	179	ABLIKIM	20G	BES3	$e^+ e^-$ at 3.773 GeV

$A_{CP}(\pi^\pm \eta'(958))$ in $D^\pm \rightarrow \pi^\pm \eta'(958)$

NODE=S031A13
NODE=S031A13

VALUE (%)	*EVTS*		*DOCUMENT ID*		*TECN*	*COMMENT*
0.41±0.23 OUR AVERAGE Error includes scale factor of 1.2.						
0.49±0.18±0.06±0.05	555k	[1]	AAIJ	23E	LHCB	6 fb^{-1}, pp at 13 TeV, $\eta \rightarrow \gamma\pi\pi$
−0.61±0.72±0.54	63k		AAIJ	17AF	LHCB	pp at 7, 8 TeV
−0.12±1.12±0.17			WON	11	BELL	$e^+ e^- \approx \Upsilon(4S)$
−4.0 ±3.4 ±0.3	1.0k		MENDEZ	10	CLEO	$e^+ e^-$ at 3774 MeV

[1] The last uncertainty is due to the uncertainty on the CP asymmetry of the control channel, $D^+ \rightarrow \phi \pi^+$.

NODE=S031A13;LINKAGE=A

$A_{CP}(\overline{K}^0 / K^0 K^\pm)$ in $D^+ \rightarrow \overline{K}^0 K^+$, $D^- \rightarrow K^0 K^-$

NODE=S031A15
NODE=S031A15

VALUE (%)	*EVTS*		*DOCUMENT ID*		*TECN*	*COMMENT*
0.11±0.17 OUR AVERAGE						
0.03±0.17±0.14	1.0M	[1]	AAIJ	14BD	LHCB	pp at 7, 8 TeV
0.08±0.28±0.14	277k		KO	13	BELL	$e^+ e^-$ at $\Upsilon(4S)$
0.46±0.36±0.25	159k		LEES	13E	BABR	$e^+ e^-$ at $\Upsilon(4S)$

[1] AAIJ 14BD reports its result as $A_{CP}(D^\pm \rightarrow K^0_S \pi^\pm)$ with CP-violation effects in the $K^0 - \overline{K}^0$ system subtracted. It also measures $A_{CP}(D^\pm \rightarrow \overline{K}^0 / K^0 K^\pm) + A_{CP}(D_s^\pm \rightarrow \overline{K}^0 / K^0 \pi^\pm) = (0.41 \pm 0.49 \pm 0.26)$%.

NODE=S031A15;LINKAGE=A

$A_{CP}(K^0_S K^\pm)$ in $D^\pm \to K^0_S K^\pm$

NODE=S031A6

NODE=S031A6

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
-0.01 ± 0.07 OUR AVERAGE					
$-0.004 \pm 0.061 \pm 0.045$	6M	AAIJ	19T	LHCB	pp at 7, 8, 13 TeV
$-1.8 \pm 2.7 \pm 1.6$	780	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV
$-0.25 \pm 0.28 \pm 0.14$	277k	KO	13	BELL	e^+e^- at Υ(nS)
$0.13 \pm 0.36 \pm 0.25$	159k	LEES	13E	BABR	e^+e^- at $\Upsilon(4S)$
$-0.2 \pm 1.5 \pm 0.9$	5.2k	MENDEZ	10	CLEO	e^+e^- at 3774 MeV
$7.1 \pm 6.1 \pm 1.2$	949	[1] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.16 \pm 0.58 \pm 0.25$		KO	10	BELL	$e^+e^- \approx \Upsilon(4S)$
$6.9 \pm 6.0 \pm 1.5$	949	[2] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

OCCUR=2

[1] LINK 02B measures $N(D^+ \to K^0_S K^+)/N(D^+ \to K^0_S \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A6;LINKAGE=A2

[2] LINK 02B measures $N(D^+ \to K^0_S K^+)/N(D^+ \to K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A6;LINKAGE=A3

$A_{CP}(K^0_S K^\pm \pi^0)$ in $D^\pm \to K^0_S K^\pm \pi^0$

NODE=S031A18

NODE=S031A18

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$1.4 \pm 3.7 \pm 2.4$	470	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV

$A_{CP}(K^0_L K^\pm \pi^0)$ in $D^\pm \to K^0_L K^\pm \pi^0$

NODE=S031A17

NODE=S031A17

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$-0.6 \pm 4.1 \pm 1.7$	410	ABLIKIM	19M	BES3	e^+e^- at 3773 MeV

$A_{CP}(K^+ K^- \pi^\pm)$ in $D^\pm \to K^+ K^- \pi^\pm$

NODE=S031A1

See also AAIJ 11G for a search for CP asymmetry in the $D^\pm \to K^+ K^- \pi^\pm$ Dalitz plots using 370k decays and four different binning schemes. No evidence for CP asymmetry was found. NODE=S031A1

NODE=S031A1

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.37 ± 0.29 OUR AVERAGE					
$0.37 \pm 0.30 \pm 0.15$	224k	[1] LEES	13F	BABR	e^+e^- at $\Upsilon(4S)$
$-0.03 \pm 0.84 \pm 0.29$		RUBIN	08	CLEO	e^+e^- at 3774 MeV
$1.4 \pm 1.0 \pm 0.8$	43k	[2] AUBERT	05S	BABR	e^+e^- at $\Upsilon(4S)$
$0.6 \pm 1.1 \pm 0.5$	14k	[3] LINK	00B	FOCS	
-1.4 ± 2.9		[3] AITALA	97B	E791	$-0.062 < A_{CP} < +0.034$ (90% CL)
-3.1 ± 6.8		[3] FRABETTI	94I	E687	$-0.14 < A_{CP} < +0.081$ (90% CL)
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$-0.1 \pm 0.9 \pm 0.4$		[4] BONVICINI	14	CLEO	See RUBIN 08
$-0.1 \pm 1.5 \pm 0.8$		DOBBS	07	CLEO	See BONVICINI 14 and RUBIN 08

[1] This is the integrated CP asymmetry. LEES 13F also searches for CP asymmetries in four regions of the Dalitz plots (two of which are listed below); in comparisons of binned D^+ and D^- Dalitz plots; in parametrized fits to those plots, including 2-body submodes; and in comparisons of Legendre-polynomial distributions for the K^+K^- and $K^-\pi^+$ systems. NODE=S031A1;LINKAGE=LE

[2] AUBERT 05S measures $N(D^+ \to K^+ K^- \pi^+)/N(D^+_s \to K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-. NODE=S031A1;LINKAGE=AU

[3] FRABETTI 94I, AITALA 98C, and LINK 00B measure $N(D^+ \to K^- K^+ \pi^+)/N(D^+ \to K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A1;LINKAGE=A

[4] RUBIN 08 performs a dedicated analysis of this decay mode on the same dataset, with slightly better precision. We therefore take it that BONVICINI 14 does not supersede RUBIN 08's A_{CP} result. NODE=S031A1;LINKAGE=B

$A_{CP}(K^\pm K^{*0})$ in $D^+ \to K^+ \overline{K}^{*0}$, $D^- \to K^- K^{*0}$

NODE=S031A2

NODE=S031A2

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
-0.3 ± 0.4 OUR AVERAGE					
$-0.3 \pm 0.4 \pm 0.2$	73k	[1] LEES	13F	BABR	e^+e^- at $\Upsilon(4S)$
$-0.4 \pm 2.0 \pm 0.6$		RUBIN	08	CLEO	Fit-fraction asymmetry
$+0.9 \pm 1.7 \pm 0.7$	11k	[2] AUBERT	05S	BABR	e^+e^- at $\Upsilon(4S)$
-1.0 ± 5.0		[3] AITALA	97B	E791	$-0.092 < A_{CP} < +0.072$ (90% CL)
-12 ± 13		[3] FRABETTI	94I	E687	$-0.33 < A_{CP} < +0.094$ (90% CL)

[1] This LEES 13F result is for the $K^{\mp}\pi^{\pm}$ mass-squared between 0.4 and 1.0 GeV^2, and does not actually separate out the K^*. NODE=S031A2;LINKAGE=LE

[2] AUBERT 05S measures $N(D^+ \rightarrow K^+\overline{K}^{*0})/N(D_s^+ \rightarrow K^+K^-\pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-. NODE=S031A2;LINKAGE=AU

[3] FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow K^+\overline{K}^*(892)^0)/N(D^+ \rightarrow K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A2;LINKAGE=A

$A_{CP|S}(K^+\overline{K}^{*0})$ in $D^{\pm} \rightarrow K^-K^+\pi^{\pm}$

NODE=S031A32

The CP asymmetry is measured as $A_{CP|S} = [(\Delta A^{top-left}_{raw} + \Delta A^{bottom-right}_{raw}) - (\Delta A^{top-right}_{raw} + \Delta A^{bottom-left}_{raw})]/2$ where ΔA^{pos}_{raw} is the difference between the signal and control channel raw asymmetries in the *pos* Dalitz plot bin of the resonance. NODE=S031A32

NODE=S031A32

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
−0.26±0.56±0.18	AAIJ	24AG	LHCB	pp at 13 TeV

$A_{CP}(\phi\pi^{\pm})$ in $D^{\pm} \rightarrow \phi\pi^{\pm}$

NODE=S031A3
NODE=S031A3

VALUE (%)			*EVTS*		*DOCUMENT ID*		*TECN*	*COMMENT*
0.01	**±0.09**	**OUR AVERAGE**			Error includes scale factor of 1.8.			
0.003	±0.040	±0.029	55M		AAIJ	19T	LHCB	pp at 7, 8, 13 TeV
−0.3	±0.3	±0.5	97k	[1]	LEES	13F	BABR	e^+e^- at $\Upsilon(4S)$
+0.51	±0.28	±0.05	237k		STARIC	12	BELL	Mainly at $\Upsilon(4S)$
−1.8	±1.6	$^{+0.2}_{-0.4}$			RUBIN	08	CLEO	Fit-fraction asymmetry
+0.2	±1.5	±0.6	10k	[2]	AUBERT	05S	BABR	e^+e^- at $\Upsilon(4S)$
−2.8	±3.6			[3]	AITALA	97B	E791	$-0.087 < A_{CP} < +0.031$ (90% CL)
+6.6	±8.6			[3]	FRABETTI	94I	E687	$-0.075 < A_{CP} < +0.21$ (90% CL)
• • • We do not use the following data for averages, fits, limits, etc. • • •								
−0.04	±0.14	±0.14	1.58M	[4]	AAIJ	13W	LHCB	pp at 7 TeV

[1] This LEES 13F result is for the K^+K^- mass-squared less than 1.3 GeV^2 and the $K^{\mp}\pi^{\pm}$ mass-squared above 1.0 GeV^2, and does not actually separate out the ϕ. NODE=S031A3;LINKAGE=LE

[2] AUBERT 05S measures $N(D^+ \rightarrow \phi\pi^+)/N(D_s^+ \rightarrow K^+K^-\pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-. NODE=S031A3;LINKAGE=AU

[3] FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow \phi\pi^+)/N(D^+ \rightarrow K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A3;LINKAGE=A

[4] See AAIJ 19T. NODE=S031A3;LINKAGE=B

$A_{CP|S}(\phi\pi^+)$ in $D^{\pm} \rightarrow K^-K^+\pi^{\pm}$

NODE=S031A31

The CP asymmetry is measured as $A_{CP|S} = [(\Delta A^{top-left}_{raw} + \Delta A^{bottom-right}_{raw}) - (\Delta A^{top-right}_{raw} + \Delta A^{bottom-left}_{raw})]/2$ where ΔA^{pos}_{raw} is the difference between the signal and control channel raw asymmetries in the *pos* Dalitz plot bin of the resonance. NODE=S031A31

NODE=S031A31

VALUE (units 10^{-3})	*DOCUMENT ID*		*TECN*	*COMMENT*
0.95±0.43±0.26	AAIJ	24AG	LHCB	pp at 13 TeV

$A_{CP}(K^{\pm}K_0^*(1430)^0)$ in $D^+ \rightarrow K^+\overline{K}_0^*(1430)^0$, $D^- \rightarrow K^-K_0^*(1430)^0$

NODE=S031A06
NODE=S031A06

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
$+8\pm6^{+4}_{-2}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(K^{\pm}K_2^*(1430)^0)$ in $D^+ \rightarrow K^+\overline{K}_2^*(1430)^0$, $D^- \rightarrow K^-K_2^*(1430)^0$

NODE=S031A07
NODE=S031A07

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
$+43\pm19^{+5}_{-18}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(K^{\pm}K_0^*(700))$ in $D^+ \rightarrow K^+\overline{K}_0^*(700)$, $D^- \rightarrow K^-K_0^*(700)$

NODE=S031A08
NODE=S031A08

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
$-12\pm11^{+14}_{-6}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(a_0(1450)^0\pi^{\pm})$ in $D^{\pm} \rightarrow a_0(1450)^0\pi^{\pm}$

NODE=S031A09
NODE=S031A09

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
$-19\pm12^{+8}_{-11}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(\phi(1680)\pi^{\pm})$ in $D^{\pm} \rightarrow \phi(1680)\pi^{\pm}$

NODE=S031A10
NODE=S031A10

VALUE (%)	*DOCUMENT ID*		*TECN*	*COMMENT*
−9±22±14	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(\pi^{\pm}2\pi^{0})$ in $D^{\pm} \to \pi^{\pm}2\pi^{0}$

NODE=S031A25
NODE=S031A25

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
+5.6±2.7±0.5	2k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$A_{CP}(\pi^{+}\pi^{-}\pi^{\pm})$ in $D^{\pm} \to \pi^{+}\pi^{-}\pi^{\pm}$

NODE=S031A4

See also AAIJ 14C for a search for *CP* violation in $D^{\pm} \to \pi^{+}\pi^{-}\pi^{\pm}$ Dalitz plots using model-independent binned and unbinned methods. No evidence was found.

NODE=S031A4

NODE=S031A4

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.5±2.0 OUR AVERAGE					
+1.2±2.2±0.6	2.6k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV
−1.7±4.2		[1] AITALA	97B	E791	$-0.086 < A_{CP} < +0.052$ (90% CL)

[1] AITALA 97B measure $N(D^+ \to \pi^+\pi^-\pi^+)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A4;LINKAGE=A

$A_{CP}(2\pi^{\pm}\pi^{\mp}\pi^{0})$ in $D^{\pm} \to 2\pi^{\pm}\pi^{\mp}\pi^{0}$

NODE=S031A26
NODE=S031A26

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
+0.3±1.8±0.8	4.6k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$A_{CP}(2\pi^{\pm}\pi^{\mp}2\pi^{0})$ in $D^{\pm} \to 2\pi^{\pm}\pi^{\mp}2\pi^{0}$

NODE=S031A27
NODE=S031A27

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−4.2±3.8±1.3	1.2k	ABLIKIM	22BG	BES3	e^+e^- at 3.773 GeV

$A_{CP}(\pi^{+}\pi^{-}\pi^{\pm}\eta)$ in $D^{\pm} \to \pi^{+}\pi^{-}\pi^{\pm}\eta$

NODE=S031A20
NODE=S031A20

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
2.5±5.0±1.6	510	ABLIKIM	20V	BES3	e^+e^-, 3773 MeV

$A_{CP}(K^0_S K^{\pm}\pi^{+}\pi^{-})$ in $D^{\pm} \to K^0_S K^{\pm}\pi^{+}\pi^{-}$

NODE=S031CPK
NODE=S031CPK

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−4.2±6.4±2.2	523 ± 32	LINK	05E	FOCS	γ A, $\overline{E}_{\gamma} \approx$ 180 GeV

$A_{CP}(K^{\pm}\pi^{0})$ in $D^{\pm} \to K^{\pm}\pi^{0}$

NODE=S031A14
NODE=S031A14

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−3 ± 5 OUR AVERAGE					
−3.2± 4.7±2.1	2.5k	AAIJ	21U	LHCB	pp at 7, 8, 13 TeV
−3.5±10.7±0.9	343	MENDEZ	10	CLEO	e^+e^- at 3774 MeV

$A_{CP}(K^{\pm}\eta)$ in $D^{\pm} \to K^{\pm}\eta$

NODE=S031A24
NODE=S031A24

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
−6±10±4	880	AAIJ	21U	LHCB	pp at 13 TeV

$D^{\pm}$ χ^2 TESTS OF *CP*-VIOLATION (*CPV*)

NODE=S031241

We list model-independent searches for local *CP* violation in phase-space distributions of multi-body decays.

NODE=S031241

Most of these searches divide phase space (Dalitz plot for 3-body decays, five-dimensional equivalent for 4-body decays) into bins, and perform a χ^2 test comparing normalised yields N_i, $\overline{N}_i$ in *CP*-conjugate bin pairs i: $\chi^2 = \Sigma_i(N_i - \alpha\,\overline{N}_i)/\sigma(N_i - \alpha\,\overline{N}_i)$. The factor $\alpha = (\Sigma_i N_i)/(\Sigma_i \overline{N}_i)$ removes the dependence on phase-space-integrated rate asymmetries. The result is used to obtain the probability (p-value) to obtain the measured χ^2 or larger under the assumption of CP conservation [AUBERT 08AO, BEDIAGA 09]. Alternative methods obtain p-values from other test variables based on unbinned analyses [WILLIAMS 11, AAIJ 14C]. Results can be combined using Fisher's method [MOSTELLER 48].

Local *CPV* in $D^{\pm} \to \pi^{+}\pi^{-}\pi^{\pm}$

NODE=S031L01
NODE=S031L01

p-value (%)	EVTS	DOCUMENT ID		TECN	COMMENT
78.1	3.1M	[1] AAIJ	14C	LHCB	χ^2

[1] AAIJ 14C uses binned and unbinned methods, and finds slightly better sensitivity with the former. We took the first value in the table of results for the binned method.

NODE=S031L01;LINKAGE=AA

Local CPV in $D^{\pm} \to K^+ K^- \pi^{\pm}$

NODE=S031L02
NODE=S031L02

p-value (%)	EVTS	DOCUMENT ID		TECN	COMMENT
31 OUR EVALUATION					
8.1	135M	AAIJ	24AG	LHCB	χ^2
72	224k	LEES	13F	BABR	χ^2
12.7	370k	[1] AAIJ	11G	LHCB	χ^2

→ UNCHECKED ←

[1] AAIJ 11G publishes results for several binning schemes. We picked the first value in their table of results.

NODE=S031L02;LINKAGE=AA

Local CPV in $D^{\pm} \to K^+ K^- K^{\pm}$

NODE=S031A28
NODE=S031A28

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
31.6	1.27M	AAIJ	23L	LHCB	χ^2

CP VIOLATING ASYMMETRIES OF P-ODD (T-ODD) MOMENTS

NODE=S031242

$A_{Tviol}(K^0_S K^{\pm}\pi^+\pi^-)$ in $D^{\pm} \to K^0_S K^{\pm}\pi^+\pi^-$

NODE=S031TV0
NODE=S031TV0

$C_T \equiv \vec{p}_{K^+} \cdot (\vec{p}_{\pi^+} \times \vec{p}_{\pi^-})$ is a parity-odd correlation of the K^+, π^+, and π^- momenta for the D^+. $\overline{C}_T \equiv \vec{p}_{K^-} \cdot (\vec{p}_{\pi^-} \times \vec{p}_{\pi^+})$ is the corresponding quantity for the D^-. Then
$A_T \equiv [\Gamma(C_T > 0) - \Gamma(C_T < 0)] / [\Gamma(C_T > 0) + \Gamma(C_T < 0)]$, and
$\overline{A}_T \equiv [\Gamma(-\overline{C}_T > 0) - \Gamma(-\overline{C}_T < 0)] / [\Gamma(-\overline{C}_T > 0) + \Gamma(-\overline{C}_T < 0)]$, and
$A_{Tviol} \equiv \frac{1}{2}(A_T - \overline{A}_T)$. C_T and $\overline{C}_T$ are commonly referred to as T-odd moments, because they are odd under T reversal. However, the T-conjugate process $K^0_S K^{\pm}\pi^+\pi^- \to D^{\pm}$ is not accessible, while the P-conjugate process is.

NODE=S031TV0

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
− 3 ± 8 OUR AVERAGE Error includes scale factor of 1.1.					
3.4± 8.7± 3.2	19k	MOON	23	BELL	980 fb^{-1} at $\sim \Upsilon(4S)$
−12.0±10.0± 4.6	21k	LEES	11E	BABR	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
23 ±62 ±22	523	LINK	05E	FOCS	γ A, $\overline{E}_{\gamma} \approx$ 180 GeV

$A_{Tviol}(K^0_S K^{\mp}\pi^{\pm}\pi^{\pm})$ in $D^{\pm} \to K^0_S K^{\mp}\pi^{\pm}\pi^{\pm}$

NODE=S031A35
NODE=S031A35

$C_T \equiv \vec{p}_{K^0_S} \cdot (\vec{p}_{K^-} \times \vec{p}_{\pi^+})$ is a parity-odd correlation of the momenta of the K^0_S, K^-, and highest-momenta π^+ for the D^+.$\overline{C}_T \equiv \vec{p}_{K^0_S} \cdot (\vec{p}_{K^+} \times \vec{p}_{\pi^-})$ is the corresponding quantity for the D^-. Then
$A_T \equiv [\Gamma(C_T > 0) - \Gamma(C_T < 0)] / [\Gamma(C_T > 0) + \Gamma(C_T < 0)]$, and
$\overline{A}_T \equiv [\Gamma(-\overline{C}_T > 0) - \Gamma(-\overline{C}_T < 0)] / [\Gamma(-\overline{C}_T > 0) + \Gamma(-\overline{C}_T < 0)]$, and
$A_{Tviol} \equiv \frac{1}{2}(A_T - \overline{A}_T)$. C_T and $\overline{C}_T$ are commonly referred to as T-odd moments, because they are odd under T reversal. However, the$T$-conjugate process $K^0_S K^{\pm}\pi^+\pi^- \to D^{\pm}$ is not accessible, while the P-conjugate process is.

NODE=S031A35

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
−2.3±4.5±1.5	70.8k	[1] AGGARWAL	25	BEL2	$e^+e^- \approx \Upsilon(4S)$

[1] AGGARWAL 25 measures $C_T \equiv \vec{p}_{K^0_S} \cdot (\vec{p}_{K^-} \times \vec{p}_{\pi^+})$ and other T-odd observables, all compatible with T-conservation, using Belle and Belle II data.

NODE=S031A35;LINKAGE=A

$A_{Tviol}(K^+ K^- K^0_S \pi^{\pm})$ in $D^{\pm} \to K^+ K^- K^0_S \pi^{\pm}$

NODE=S031TV1
NODE=S031TV1

$C_T \equiv \vec{p}_{K^+} \cdot (\vec{p}_{\pi^+} \times \vec{p}_{K^-})$ is a parity-odd correlation of the K^+, π^+, and K^- momenta for the D^+. $\overline{C}_T \equiv \vec{p}_{K^-} \cdot (\vec{p}_{\pi^-} \times \vec{p}_{K^+})$ is the corresponding quantity for the D^-. Then
$A_T \equiv [\Gamma(C_T > 0) - \Gamma(C_T < 0)] / [\Gamma(C_T > 0) + \Gamma(C_T < 0)]$, and
$\overline{A}_T \equiv [\Gamma(-\overline{C}_T > 0) - \Gamma(-\overline{C}_T < 0)] / [\Gamma(-\overline{C}_T > 0) + \Gamma(-\overline{C}_T < 0)]$, and
$A_{Tviol} \equiv \frac{1}{2}(A_T - \overline{A}_T)$. C_T and $\overline{C}_T$ are commonly referred to as T-odd moments, because they are odd under T reversal. However, the T-conjugate process $K^+ K^- K^0_S \pi^{\pm} \to D^{\pm}$ is not accessible, while the P-conjugate process is.

NODE=S031TV1

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
−3.34±2.66±0.35	1.4k	MOON	23	BELL	980 fb^{-1} at $\sim \Upsilon(4S)$

SEMILEPTONIC FORM FACTORS

NODE=S031250

$f_+(0)|V_{cs}|$ in $D^+ \to \overline{K}^0 \ell^+ \nu_\ell$

NODE=S031FK0
NODE=S031FK0

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
0.7163±0.0033 OUR AVERAGE					
0.7207±0.0027±0.0035	58k	ABLIKIM 24CN	BES3	$\overline{K}^0 e^+ \nu_e$ 2-parameter fit	
0.7124±0.0035±0.0032	47k	ABLIKIM 24CN	BES3	$\overline{K}^0 \mu^+ \nu_\mu$ 2-parameter fit	OCCUR=2
0.707 ±0.010 ±0.009		[1] BESSON 09	CLEO	$K_S e^+ \nu_e$ 3-parameter fit	
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.7053±0.0040±0.0112		[2] ABLIKIM 17S	BES3	$K^0_S e^+ \nu_e$ 2-parameter fit	
0.737 ±0.006 ±0.009		[2,3] ABLIKIM 15AF	BES3	$K_L e^+ \nu_e$ 3-parameter fit	

[1] BESSON 09 finds 0.716 ± 0.007 ± 0.009 for a 2-parameter fit. NODE=S031FK0;LINKAGE=B
[2] Superseded by ABLIKIM 24CN. NODE=S031FK0;LINKAGE=C
[3] ABLIKIM 15AF finds 0.728 ± 0.006 ± 0.011 for a 2-parameter fit. NODE=S031FK0;LINKAGE=A

$r_1 \equiv a_1/a_0$ in $D^+ \to \overline{K}^0 \ell^+ \nu_\ell$

NODE=S031FK1
NODE=S031FK1

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
−2.13±0.14 OUR AVERAGE				
−2.18±0.14±0.05		ABLIKIM 17S	BES3	$K^0_S e^+ \nu_e$ 2-parameter fit
−2.23±0.42±0.53	40k	[1] ABLIKIM 15AF	BES3	$K_L e^+ \nu_e$ 3-parameter fit
−1.66±0.44±0.10		[2] BESSON 09	CLEO	$K_S e^+ \nu_e$ 3-parameter fit

[1] ABLIKIM 15AF finds $r_1 = -1.91 \pm 0.33 \pm 0.28$ for a 2-parameter fit. NODE=S031FK1;LINKAGE=A
[2] BESSON 09 finds $r_1 = -2.10 \pm 0.25 \pm 0.08$ for 2-parameter fit. NODE=S031FK1;LINKAGE=B

$r_2 \equiv a_2/a_0$ in $D^+ \to \overline{K}^0 \ell^+ \nu_\ell$

NODE=S031FK2
NODE=S031FK2

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
− 3±12 OUR AVERAGE Error includes scale factor of 1.5.				
+11± 9±9	40k	ABLIKIM 15AF	BES3	$K_L e^+ \nu_e$ 3-parameter fit
−14±11±1		BESSON 09	CLEO	$K_S e^+ \nu_e$ 3-parameter fit

$f_+(0)|V_{cd}|$ in $D^+ \to \pi^0 \ell^+ \nu_\ell$

NODE=S031FP0
NODE=S031FP0

VALUE	DOCUMENT ID	TECN	COMMENT
0.1407±0.0025 OUR AVERAGE			
0.1400±0.0026±0.0007	ABLIKIM 17S	BES3	$\pi^0 e^+ \nu_e$ 2-parameter fit
0.146 ±0.007 ±0.002	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

$r_1 \equiv a_1/a_0$ in $D^+ \to \pi^0 \ell^+ \nu_\ell$

NODE=S031FP1
NODE=S031FP1

VALUE	DOCUMENT ID	TECN	COMMENT
−2.00±0.13 OUR AVERAGE			
−2.01±0.13±0.02	ABLIKIM 17S	BES3	$\pi^0 e^+ \nu_e$ 2-parameter fit
−1.37±0.88±0.24	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

$r_2 \equiv a_2/a_0$ in $D^+ \to \pi^0 \ell^+ \nu_\ell$

NODE=S031FP2
NODE=S031FP2

VALUE	DOCUMENT ID	TECN	COMMENT
−4±5±1	BESSON 09	CLEO	$\pi^0 e^+ \nu_e$ 3-parameter fit

$f_+(0)|V_{cd}|$ in $D^+ \to \eta \ell^+ \nu_\ell$ ($\ell = e$ or ν)

NODE=S031FE0
NODE=S031FE0

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT	
8.4 ±0.4 OUR AVERAGE					
8.7 ±0.8 ±0.2	234	ABLIKIM 20T	BES3	$\eta \mu^+ \nu_\mu$, z expansion	OCCUR=2
7.86±0.64±0.21	373	ABLIKIM 18R	BES3	$\eta e^+ \nu_e$, z expansion	
8.6 ±0.6 ±0.1		YELTON 11	CLEO	$\eta e^+ \nu_e$, z expansion	

$f_+^{\eta'}(0)|V_{cd}|$ in $D^+ \to \eta' \ell^+ \nu_\ell$ ($\ell = e, \nu$)

NODE=S031A34
NODE=S031A34

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
5.92±0.56±0.13	0.24k	[1] ABLIKIM 25AO	BES3	$e^+ e^-$ at 3.773 GeV

[1] Uses a two-parameter series expansion for the form factor parametrization . NODE=S031A34;LINKAGE=A

$r_1 \equiv a_1/a_0$ in $D^+ \to \eta e^+ \nu_e$

NODE=S031FE1
NODE=S031FE1

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
−5.3 ±2.7 OUR AVERAGE Error includes scale factor of 1.9.				
−7.33±1.69±0.40	373	ABLIKIM 18R	BES3	z expansion
−1.83±2.23±0.28		YELTON 11	CLEO	z expansion

$r_v \equiv V(0)/A_1(0)$ in $D^+ \to \omega e^+ \nu_e$

NODE=S031FO1

VALUE	DOCUMENT ID		TECN	COMMENT
1.24±0.09±0.06	ABLIKIM	15W	BES3	292 fb^{-1}, 3773 MeV

$r_2 \equiv A_2(0)/A_1(0)$ in $D^+ \to \omega e^+ \nu_e$

NODE=S031FO2

VALUE	DOCUMENT ID		TECN	COMMENT
1.06±0.15±0.05	ABLIKIM	15W	BES3	292 fb^{-1}, 3773 MeV

$r_v \equiv V(0)/A_1(0)$ in $D^+,D^0 \to \rho e^+ \nu_e$

NODE=S031RVD

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.53 ±0.08 OUR AVERAGE					
1.548±0.079±0.041	3.3k	[1] ABLIKIM	24CP	BES3	$e^+ e^-$ at 3.773 GeV
1.48 ±0.15 ±0.05		[2,3] DOBBS	13	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.695±0.083±0.051	2.5k	[2,4] ABLIKIM	19C	BES3	$e^+ e^-$ at 3773 MeV

[1] $D^0 \to \rho^- e^+ \nu_e$ only, uses a single-pole-dominance parametrization. NODE=S031RVD;LINKAGE=B

[2] Uses both D^+ and D^0 events. NODE=S031RVD;LINKAGE=A

[3] Using PDG 10 values of V_{cd} and lifetimes, DOBBS 13 gets $A_1(0) = 0.56 \pm 0.01^{+0.02}_{-0.03}$, $A_2(0) = 0.47 \pm 0.06 \pm 0.04$, and $V(0) = 0.84 \pm 0.09^{+0.05}_{-0.06}$. NODE=S031RVD;LINKAGE=DO

[4] Superseded in part by ABLIKIM 24CP. NODE=S031RVD;LINKAGE=C

$r_2 \equiv A_2(0)/A_1(0)$ in $D^+,D^0 \to \rho e^+ \nu_e$

NODE=S031R2D

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.82 ±0.05 OUR AVERAGE					
0.823±0.056±0.026	3.3k	[1] ABLIKIM	24CP	BES3	$e^+ e^-$ at 3.773 GeV
0.83 ±0.11 ±0.04		[2,3] DOBBS	13	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.845±0.056±0.039	2.5k	[2,4] ABLIKIM	19C	BES3	$e^+ e^-$ at 3773 MeV

[1] $D^0 \to \rho^- e^+ \nu_e$ only, uses a single-pole-dominance parametrization. NODE=S031R2D;LINKAGE=B

[2] Uses both D^+ and D^0 events. NODE=S031R2D;LINKAGE=A

[3] Using PDG 10 values of V_{cd} and lifetimes, DOBBS 13 gets $A_1(0) = 0.56 \pm 0.01^{+0.02}_{-0.03}$, $A_2(0) = 0.47 \pm 0.06 \pm 0.04$, and $V(0) = 0.84 \pm 0.09^{+0.05}_{-0.06}$. NODE=S031R2D;LINKAGE=DO

[4] Superseded in part by ABLIKIM 24CP. NODE=S031R2D;LINKAGE=C

$r_v \equiv V(0)/A_1(0)$ in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

NODE=S031FRV

See also BRIERE 10 for $\overline{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

NODE=S031FRV

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.47 ±0.04 OUR AVERAGE Error includes scale factor of 2.0. See the ideogram below. [1.48 ± 0.05 OUR 2025 AVERAGE Scale factor = 1.9]					
1.42 ±0.03 ±0.02	17.9k	[1] ABLIKIM	25BP	BES3	$\overline{K}^*(892)^0 \ell^+ \nu_\ell$
1.411±0.058±0.007	16.2k	ABLIKIM	16F	BES3	$\overline{K}^*(892)^0 e^+ \nu_e$
1.463±0.017±0.031		[2] DEL-AMO-SA...	11I	BABR	
1.504±0.057±0.039	15k	[3] LINK	02L	FOCS	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.45 ±0.23 ±0.07	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.90 ±0.11 ±0.09	3000	[4] AITALA	98B	E791	$\overline{K}^*(892)^0 e^+ \nu_e$
1.84 ±0.11 ±0.09	3034	AITALA	98F	E791	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.74 ±0.27 ±0.28	874	FRABETTI	93E	E687	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
2.00 $^{+0.34}_{-0.32}$ ±0.16	305	KODAMA	92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.43 ±0.07 ±0.03	3.8k	[1] ABLIKIM	24CS	BES3	Superseded by ABLIKIM 25BP
2.0 ±0.6 ±0.3	183	ANJOS	90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

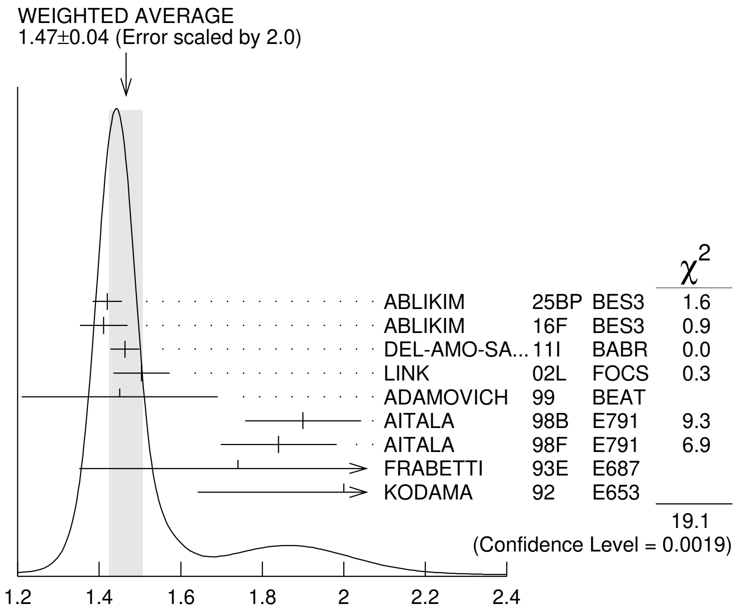
NEW

[1] Uses a single-pole dominance parameterization. NODE=S031FRV;LINKAGE=D

[2] DEL-AMO-SANCHEZ 11I finds the pole mass $m_A = (2.63 \pm 0.10 \pm 0.13)$ GeV (m_V is fixed at 2 GeV). NODE=S031FRV;LINKAGE=DE

[3] LINK 02L includes the effects of interference with an S-wave background. This much improves the goodness of fit, but does not much shift the values of the form factors. NODE=S031FRV;LINKAGE=LL

[4] This is slightly different from the AITALA 98B value: see ref. [5] in AITALA 98F. NODE=S031FRV;LINKAGE=A



$r_V \equiv V(0)/A_1(0)$ in $D^+ \rightarrow \overline{K}^*(892)^0 \ell^+ \nu_\ell$

$r_2 \equiv A_2(0)/A_1(0)$ in $D^+ \rightarrow \overline{K}^*(892)^0 \ell^+ \nu_\ell$

NODE=S031FR2

See also BRIERE 10 for $\overline{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

NODE=S031FR2
NODE=S031FR2
NEW

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.786±0.018 OUR AVERAGE				
[0.794 ± 0.020 OUR 2025 AVERAGE]				
0.75 ±0.03 ±0.01	17.9k	[1] ABLIKIM 25BP	BES3	$\overline{K}^*(892)^0 \ell^+ \nu_\ell$
0.788±0.042±0.008	16.2k	ABLIKIM 16F	BES3	$\overline{K}^*(892)^0 e^+ \nu_e$
0.801±0.020±0.020		[2] DEL-AMO-SA...11I	BABR	
0.875±0.049±0.064	15k	[3] LINK 02L	FOCS	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.00 ±0.15 ±0.03	763	ADAMOVICH 99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.71 ±0.08 ±0.09	3000	AITALA 98B	E791	$\overline{K}^*(892)^0 e^+ \nu_e$
0.75 ±0.08 ±0.09	3034	AITALA 98F	E791	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.78 ±0.18 ±0.10	874	FRABETTI 93E	E687	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.82 $^{+0.22}_{-0.23}$ ±0.11	305	KODAMA 92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.72 ±0.06 ±0.02	3.8k	[1] ABLIKIM 24CS	BES3	Superseded by ABLIKIM 25BP
0.0 ±0.5 ±0.2	183	ANJOS 90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

[1] Uses a single-pole dominance parameterization. NODE=S031FR2;LINKAGE=A

[2] DEL-AMO-SANCHEZ 11I finds the pole mass $m_A = (2.63 \pm 0.10 \pm 0.13)$ GeV (m_V is fixed at 2 GeV). NODE=S031FR2;LINKAGE=DE

[3] LINK 02L includes the effects of interference with an S-wave background. This much improves the goodness of fit, but does not much shift the values of the form factors. NODE=S031FR2;LINKAGE=LL

$r_3 \equiv A_3(0)/A_1(0)$ in $D^+ \rightarrow \overline{K}^*(892)^0 \ell^+ \nu_\ell$

NODE=S031FR3

See also BRIERE 10 for $\overline{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

NODE=S031FR3
NODE=S031FR3

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.04±0.33±0.29	3034	AITALA 98F	E791	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$

Γ_L/Γ_T in $D^+ \rightarrow \overline{K}^*(892)^0 \ell^+ \nu_\ell$

NODE=S031GLT

See also BRIERE 10 for $\overline{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

NODE=S031GLT
NODE=S031GLT

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.13±0.08 OUR AVERAGE				
1.09±0.10±0.02	763	ADAMOVICH 99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.20±0.13±0.13	874	FRABETTI 93E	E687	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.18±0.18±0.08	305	KODAMA 92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
• • • We do not use the following data for averages, fits, limits, etc. • • •				
1.8 $^{+0.6}_{-0.4}$ ±0.3	183	ANJOS 90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

Γ_+/Γ_- in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

NODE=S031GPM

See also BRIERE 10 for $\overline{K}^* \ell^+ \nu_\ell$ helicity-basis form-factor measurements.

NODE=S031GPM
NODE=S031GPM

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.22±0.06 OUR AVERAGE	Error includes scale factor of 1.6.				
$0.28 \pm 0.05 \pm 0.02$	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
$0.16 \pm 0.05 \pm 0.02$	305	KODAMA	92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.15^{+0.07}_{-0.05} \pm 0.03$	183	ANJOS	90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

$r_V \equiv V_2(0)/V_1(0)$ in $D \to K_1(1270) e^+ \nu_e$

NODE=S031RV1
NODE=S031RV1

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{-4.3 \pm 1.0 \pm 2.5}$	2k	ABLIKIM	25AM	BES3	$e^+ e^-$ at 3.773 GeV

$r_A \equiv A(0)/V_1(0)$ in $D \to K_1(1270) e^+ \nu_e$

NODE=S031A33
NODE=S031A33

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{-11.2 \pm 1.0 \pm 0.9}$	2k	ABLIKIM	25AM	BES3	$e^+ e^-$ at 3.773 GeV

Amplitude analyses

NODE=S031265

$D \to K \pi \pi \pi$ partial wave analyses

NODE=S031PWA

Amplitude analyses of D^+ decays to a variety of 4-body kaon or pion final states, fitting simultaneously different partial wave components.

NODE=S031PWA

NODE=S031PWA

VALUE	DOCUMENT ID		TECN	COMMENT
	ABLIKIM	19AZ	BES3	$D^+ \to K^0_S \pi^+ \pi^+ \pi^-$

$D^+ \to 2\pi^+ \pi^-$ partial wave analyses

NODE=S031A29
NODE=S031A29

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
	572k	[1] AAIJ	23H	LHCB	Dalitz plot fit
	2.2k	BONVICINI	07	CLEO	
	1.5k	LINK	04	FOCS	
	1.2k	AITALA	01B	E791	

[1] The amplitude model has 7 components, including a $\pi^+ \pi^\pm$ S-wave parametrised by one complex number per bin in 50 bins of $\pi^+ \pi^-$ invariant mass.

NODE=S031A29;LINKAGE=A

$D^+ \to \pi^+ \pi^0 \eta$ partial wave analyses

NODE=S031A30
NODE=S031A30

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
	950	[1] ABLIKIM	24CL	BES3	$e^+ e^-$ at 3.773 GeV

[1] The amplitude model has six components, including $(\pi^+ \pi^0)_V \eta$ with a vector-like mode.

NODE=S031A30;LINKAGE=A

$D^\pm$ REFERENCES

NODE=S031

ABLIKIM	25AM	PRL 135 091801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63297
ABLIKIM	25AO	PRL 134 111801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63321
ABLIKIM	25AU	PR D111 L071101	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63383
ABLIKIM	25AX	PR D111 092005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63400
ABLIKIM	25BA	PR D112 012001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63424
ABLIKIM	25BB	JHEP 2501 089	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63429
ABLIKIM	25BF	JHEP 2505 195	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63474
ABLIKIM	25BI	JHEP 2506 220	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63483
ABLIKIM	25BK	CP C49 063001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63517
ABLIKIM	25BM	PRL 135 061801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63533
ABLIKIM	25BP	PRL 135 171801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63609
ABLIKIM	25CN	JHEP 2510 178	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63708
ABLIKIM	25CP	CP C49 083001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63733
ABLIKIM	25M	PR D111 032011	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63257
ADACHI	25Q	PR D112 L031101	I. Adachi *et al.*	(BELLE II Collab.)	REFID=63541
AGGARWAL	25	JHEP 2504 036	L. Aggarwal *et al.*	(BELLE and BELLE II Collab.)	REFID=63457
ANASHIN	25	PPN 56 802	V.V. Anashin *et al.*	(VEPP-4M KEDR Collab.)	REFID=63519
ANASHIN	25A	JHEP 2511 001	V.V. Anashin *et al.*	(VEPP-4M KEDR Collab.)	REFID=63711
AAIJ	24AG	PRL 133 251801	R. Aaij *et al.*	(LHCb Collab.)	REFID=63072
ABLIKIM	24AS	PRL 132 131903	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62721
ABLIKIM	24AZ	PR D109 072003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62788
ABLIKIM	24CJ	PR D110 092006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63094
ABLIKIM	24CK	PR D110 092008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63095
ABLIKIM	24CL	PR D110 L111102	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63102
ABLIKIM	24CM	PR D110 112001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63103
ABLIKIM	24CN	PR D110 112006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63107
ABLIKIM	24CP	PR D110 112018	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63112
ABLIKIM	24CR	JHEP 2409 089	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63123
ABLIKIM	24CS	JHEP 2410 199	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63131
ABLIKIM	24CX	JHEP 2412 206	M. Ablikim *et al.*	(BESIII Collab.)	REFID=63204
AAIJ	23E	JHEP 2304 081	R. Aaij *et al.*	(LHCb Collab.)	REFID=62110
AAIJ	23H	JHEP 2306 044	R. Aaij *et al.*	(LHCb Collab.)	REFID=62131
AAIJ	23L	JHEP 2307 067	R. Aaij *et al.*	(LHCb Collab.)	REFID=62158
ABLIKIM	23AI	PR D107 032002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62247
ABLIKIM	23AO	PR D107 112005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62278

ABLIKIM	23BW	JHEP 2309 077	M. Ablikim *et al.*	(BESIII Collab.)	REFID=62526
LI	23G	PR D107 033003	L.K. Li *et al.*	(BELLE Collab.)	REFID=62251
MOON	23	PR D108 L111102	H.K. Moon *et al.*	(BELLE Collab.)	REFID=62511
ABLIKIM	22BG	PR D106 092005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61955
ABLIKIM	22BJ	PR D106 112009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61965
ABLIKIM	22BK	JHEP 2209 107	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61968
ABLIKIM	22U	PR D105 032009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61721
ABLIKIM	22Y	PR D106 032002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61764
AAIJ	21T	JHEP 2106 044	R. Aaij *et al.*	(LHCb Collab.)	REFID=61314
AAIJ	21U	JHEP 2106 019	R. Aaij *et al.*	(LHCb Collab.)	REFID=61315
ABLIKIM	21AD	PR D104 012006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61359
ABLIKIM	21BA	PR D104 052008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61515
ABLIKIM	21BB	PR D104 072005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=61522
ABUDINEN	21A	PRL 127 211801	F. Abudinen *et al.*	(BELLE II Collab.)	REFID=61505
ABLIKIM	20AA	PR D102 052003	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60716
ABLIKIM	20AC	PR D102 052006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60718
ABLIKIM	20AF	PR D102 112005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60741
ABLIKIM	20D	PR D101 031102	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60251
ABLIKIM	20G	PR D101 052009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60272
ABLIKIM	20H	PR D101 072005	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60290
ABLIKIM	20T	PRL 124 231801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60566
ABLIKIM	20V	PRL 124 241803	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60569
ABLIKIM	20Z	PRL 125 141802	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60687
AAIJ	19G	JHEP 1903 176	R. Aaij *et al.*	(LHCb Collab.)	REFID=59664
AAIJ	19H	JHEP 1904 063	R. Aaij *et al.*	(LHCb Collab.)	REFID=59670
AAIJ	19T	PRL 122 191803	R. Aaij *et al.*	(LHCb Collab.)	REFID=59782
ABLIKIM	19AL	PR D99 112002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59885
ABLIKIM	19AY	PR D100 072006	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60013
ABLIKIM	19AZ	PR D100 072008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60015
ABLIKIM	19BG	PRL 123 211802	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60069
ABLIKIM	19BH	PRL 123 231801	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60072
ABLIKIM	19BI	PL B798 135017	M. Ablikim *et al.*	(BESIII Collab.)	REFID=60140
ABLIKIM	19C	PRL 122 062001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59591
ABLIKIM	19M	PR D99 032002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59613
ABLIKIM	18AC	PR D98 092009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59475
ABLIKIM	18AE	PRL 121 171803	M. Ablikim *et al.*	(BESIII Collab.)	REFID=59528
ABLIKIM	18F	PRL 121 081802	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58867
ABLIKIM	18P	PR D97 072015	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58926
ABLIKIM	18R	PR D97 092009	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58941
ABLIKIM	18W	PR D97 072004	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58992
BABU	18	PR D97 011101	V. Babu *et al.*	(BELLE Collab.)	REFID=58716
AAIJ	17AF	PL B771 21	R. Aaij *et al.*	(LHCb Collab.)	REFID=57908
ABLIKIM	17A	PL B765 231	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57707
ABLIKIM	17AD	PR D96 092002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58307
ABLIKIM	17M	PR D95 071102	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57975
ABLIKIM	17S	PR D96 012002	M. Ablikim *et al.*	(BESIII Collab.)	REFID=58010
ABLIKIM	16D	PRL 116 082001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57183
ABLIKIM	16F	PR D94 032001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57307
ABLIKIM	16G	EPJ C76 369	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57375
ABLIKIM	16V	CP C40 113001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57737
ABLIKIM	15AF	PR D92 112008	M. Ablikim *et al.*	(BESIII Collab.)	REFID=57014
ABLIKIM	15W	PR D92 071101	M. Ablikiim *et al.*	(BESIII Collab.)	REFID=56887
AAIJ	14BD	JHEP 1410 025	R. Aaij *et al.*	(LHCb Collab.)	REFID=56173
AAIJ	14C	PL B728 585	R. Aaij *et al.*	(LHCb Collab.)	REFID=55630
ABAZOV	14L	PR D90 111102	V.M. Abazov *et al.*	(D0 Collab.)	REFID=56325
ABLIKIM	14E	PR D89 052001	M. Ablikim *et al.*	(BESIII Collab.)	REFID=55792
ABLIKIM	14F	PR D89 051104	M. Ablikim *et al.*	(BESIII Collab.)	REFID=55793
BONVICINI	14	PR D89 072002	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=55798
AAIJ	13AF	PL B724 203	R. Aaij *et al.*	(LHCb Collab.)	REFID=55085
AAIJ	13W	JHEP 1306 112	R. Aaij *et al.*	(LHCb Collab.)	REFID=55037
DOBBS	13	PRL 110 131802	S. Dobbs *et al.*	(CLEO Collab.)	REFID=55201
KO	13	JHEP 1302 098	B.R. Ko *et al.*	(BELLE Collab.)	REFID=54821
LEES	13E	PR D87 052012	J.P. Lees *et al.*	(BABAR Collab.)	REFID=54960
LEES	13F	PR D87 052010	J.P. Lees *et al.*	(BABAR Collab.)	REFID=55127
KO	12A	PRL 109 119903 (errat.)	B.R. Ko *et al.*	(BELLE Collab.)	REFID=54256
Also		PRL 109 021601	B.R. Ko *et al.*	(BELLE Collab.)	REFID=54255
STARIC	12	PRL 108 071801	M. Staric *et al.*	(BELLE Collab.)	REFID=54010
AAIJ	11G	PR D84 112008	R. Aaij *et al.*	(LHCb Collab.)	REFID=53981
DEL-AMO-SA...	11H	PR D83 071103	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=16491
DEL-AMO-SA...	11I	PR D83 072001	P. del Amo Sanchez *et al.*	(BABAR Collab.)	REFID=16493
LEES	11E	PR D84 031103	J.P. Lees *et al.*	(BABAR Collab.)	REFID=53773
LEES	11G	PR D84 072006	J.P. Lees *et al.*	(BABAR Collab.)	REFID=53808
WILLIAMS	11	PR D84 054015	M. Williams	(LOIC)	REFID=56416
WON	11	PRL 107 221801	E. Won *et al.*	(BELLE Collab.)	REFID=53885
YELTON	11	PR D84 032001	J. Yelton *et al.*	(CLEO Collab.)	REFID=53766
ANASHIN	10A	PL B686 84	V.V. Anashin *et al.*	(VEPP-4M KEDR Collab.)	REFID=53230
ASNER	10	PR D81 052007	D.M. Asner *et al.*	(CLEO Collab.)	REFID=53219
BRIERE	10	PR D81 112001	R.A. Briere *et al.*	(CLEO Collab.)	REFID=53323
KO	10	PRL 104 181602	B.R. Ko *et al.*	(BELLE Collab.)	REFID=53302
MENDEZ	10	PR D81 052013	H. Mendez *et al.*	(CLEO Collab.)	REFID=53251
PDG	10	JP G37 075021	K. Nakamura *et al.*	(PDG Collab.)	REFID=53229
RUBIN	10	PR D82 092007	P. Rubin *et al.*	(CLEO Collab.)	REFID=53472
BEDIAGA	09	PR D80 096006	I. Bediaga *et al.*	(CBPF, NDAM)	REFID=53161
BESSON	09	PR D80 032005	D. Besson *et al.*	(CLEO Collab.)	REFID=52963
Also		PR D79 052010	J.Y. Ge *et al.*	(CLEO Collab.)	REFID=52823
KO	09	PRL 102 221802	B.R. Ko *et al.*	(BELLE Collab.)	REFID=52831
LINK	09	PL B681 14	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=53056
MITCHELL	09B	PRL 102 081801	R.E. Mitchell *et al.*	(CLEO Collab.)	REFID=52848
WON	09	PR D80 111101	E. Won *et al.*	(BELLE Collab.)	REFID=53164
ABAZOV	08D	PRL 100 101801	V.M. Abazov *et al.*	(D0 Collab.)	REFID=52212
ABLIKIM	08L	PL B665 16	M. Ablikim *et al.*	(BES Collab.)	REFID=52461
ARTUSO	08	PR D77 092003	M. Artuso *et al.*	(CLEO Collab.)	REFID=52350
AUBERT	08AO	PR D78 051102	B. Aubert *et al.*	(BABAR Collab.)	REFID=52363
BONVICINI	08	PR D77 091106	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=52349
BONVICINI	08A	PR D78 052001	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=52426
DOBBS	08	PR D77 112005	S. Dobbs *et al.*	(CLEO Collab.)	REFID=52407
Also		PRL 100 251802	D. Cronin-Hennessy *et al.*	(CLEO Collab.)	REFID=52443
EISENSTEIN	08	PR D78 052003	B.I. Eisenstein *et al.*	(CLEO Collab.)	REFID=52428
HE	08	PRL 100 091801	Q. He *et al.*	(CLEO Collab.)	REFID=52215

PDG	08	PL B667 1	C. Amsler *et al.*	(PDG Collab.)	REFID=52166
RUBIN	08	PR D78 072003	P. Rubin *et al.*	(CLEO Collab.)	REFID=52534
ABLIKIM	07	PL B644 20	M. Ablikim *et al.*	(BES Collab.)	REFID=51595
ABLIKIM	07G	PL B658 1	M. Ablikim *et al.*	(BES Collab.)	REFID=52031
BONVICINI	07	PR D76 012001	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=51721
DOBBS	07	PR D76 112001	S. Dobbs *et al.*	(CLEO Collab.)	REFID=52075
LINK	07B	PL B653 1	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=51875
ABLIKIM	06O	EPJ C47 31	M. Ablikim *et al.*	(BES Collab.)	REFID=51228
ABLIKIM	06P	EPJ C47 39	M. Ablikim *et al.*	(BES Collab.)	REFID=51229
ABLIKIM	06U	PL B643 246	M. Ablikim *et al.*	(BES Collab.)	REFID=51495
ADAM	06A	PRL 97 251801	N.E. Adam *et al.*	(CLEO Collab.)	REFID=51559
AITALA	06	PR D73 032004	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=51051
Also		PR D74 059901 (errat.)	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=51458
AUBERT,B	06F	PR D74 011107	B. Aubert *et al.*	(BABAR Colla.b)	REFID=51292
DYTMAN	06	PR D74 071102	S.A. Dytman *et al.*	(CLEO Collab.)	REFID=51460
HUANG	06B	PR D74 112005	G.S. Huang *et al.*	(CLEO Collab.)	REFID=51590
LINK	06B	PL B637 32	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=51255
RUBIN	06	PRL 96 081802	P. Rubin *et al.*	(CLEO Collab.)	REFID=50981
RUBIN	06A	PR D73 112005	P. Rubin *et al.*	(CLEO Collab.)	REFID=51284
ABLIKIM	05A	PL B608 24	M. Ablikim *et al.*	(BES Collab.)	REFID=50473
ABLIKIM	05D	PL B610 183	M. Ablikim *et al.*	(BES Collab.)	REFID=50598
ABLIKIM	05F	PL B622 6	M. Ablikim *et al.*	(BES Collab.)	REFID=50681
ABLIKIM	05P	PL B625 196	M. Ablikim *et al.*	(BES Collab.)	REFID=50879
ARTUSO	05A	PRL 95 251801	M. Artuso *et al.*	(CLEO Collab.)	REFID=50980
AUBERT	05S	PR D71 091101	B. Aubert *et al.*	(BABAR Collab.)	REFID=50633
HE	05	PRL 95 121801	Q. He *et al.*	(CLEO Collab.)	REFID=50924
Also		PRL 96 199903 (errat.)	Q. He *et al.*	(CLEO Collab.)	REFID=51211
HE	05A	PRL 95 221802	Q. He *et al.*	(CLEO Collab.)	REFID=50951
HUANG	05B	PRL 95 181801	G.S. Huang *et al.*	(CLEO Collab.)	REFID=50932
KAYIS-TOPAK...	05	PL B626 24	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)	REFID=50880
LINK	05E	PL B622 239	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50567
LINK	05I	PL B621 72	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50679
ABLIKIM	04C	PL B597 39	M. Ablikim *et al.*	(BEPC BES Collab.)	REFID=49985
ARMS	04	PR D69 071102	K. Arms *et al.*	(CLEO Collab.)	REFID=49962
BONVICINI	04A	PR D70 112004	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=50376
LINK	04	PL B585 200	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49774
LINK	04E	PL B598 33	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50118
LINK	04F	PL B601 10	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50131
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*		REFID=49401
LINK	03D	PL B561 225	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49373
LINK	03F	PL B572 21	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49533
AITALA	02	PRL 89 121801	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=48807
BRANDENB...	02	PRL 89 222001	G. Brandenburg *et al.*	(CLEO Collab.)	REFID=49076
KAYIS-TOPAK...	02	PL B549 48	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)	REFID=49090
LINK	02B	PRL 88 041602	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48607
Also		PRL 88 159903 (errat.)	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48703
LINK	02E	PL B535 43	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48728
LINK	02F	PL B537 192	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48767
LINK	02I	PL B541 227	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48776
LINK	02J	PL B541 243	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48777
LINK	02L	PL B544 89	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48918
AITALA	01B	PRL 86 770	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=48005
LINK	01C	PRL 87 162001	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48360
ABREU	00O	EPJ C12 209	P. Abreu *et al.*	(DELPHI Collab.)	REFID=47580
ASTIER	00D	PL B486 35	P. Astier *et al.*	(CERN NOMAD Collab.)	REFID=47727
JUN	00	PRL 84 1857	S.Y. Jun *et al.*	(FNAL SELEX Collab.)	REFID=47502
LINK	00B	PL B491 232	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=47794
Also		PL B495 443 (errat.)	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=47918
ABBIENDI	99K	EPJ C8 573	G. Abbiendi *et al.*	(OPAL Collab.)	REFID=46970
ADAMOVICH	99	EPJ C6 35	M. Adamovich *et al.*	(CERN BEATRICE Collab.)	REFID=46535
AITALA	99G	PL B462 401	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=47185
BONVICINI	99	PRL 82 4586	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=47018
AITALA	98B	PRL 80 1393	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45920
AITALA	98C	PL B421 405	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45931
AITALA	98F	PL B440 435	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=46453
BAI	98B	PL B429 188	J.Z. Bai *et al.*	(BEPC BES Collab.)	REFID=46062
AITALA	97	PL B397 325	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45321
AITALA	97B	PL B403 377	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45452
AITALA	97C	PL B404 187	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45453
BISHAI	97	PRL 78 3261	M. Bishai *et al.*	(CLEO Collab.)	REFID=45305
FRABETTI	97	PL B391 235	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45246
FRABETTI	97B	PL B398 239	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45323
FRABETTI	97C	PL B401 131	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45411
FRABETTI	97D	PL B407 79	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45554
AITALA	96	PRL 76 364	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=44625
FRABETTI	95	PL B346 199	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44134
FRABETTI	95B	PL B351 591	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44284
FRABETTI	95E	PL B359 403	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44476
KODAMA	95	PL B345 85	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=44124
ALBRECHT	94I	ZPHY C64 375	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44156
BALEST	94	PRL 72 2328	R. Balest *et al.*	(CLEO Collab.)	REFID=43712
FRABETTI	94D	PL B323 459	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43745
FRABETTI	94G	PL B331 217	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43895
FRABETTI	94I	PR D50 2953	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44029
AKERIB	93	PRL 71 3070	D.S. Akerib *et al.*	(CLEO Collab.)	REFID=43571
ANJOS	93	PR D48 56	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=43332
FRABETTI	93E	PL B307 262	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43354
ALBRECHT	92F	PL B278 202	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41987
BARLAG	92C	ZPHY C55 383	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=42202
Also		ZPHY C48 29	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=41313
COFFMAN	92B	PR D45 2196	D.M. Coffman *et al.*	(Mark III Collab.)	REFID=41921
DAOUDI	92	PR D45 3965	M. Daoudi *et al.*	(CLEO Collab.)	REFID=41616

KODAMA	92	PL B274 246	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=42047
KODAMA	92C	PL B286 187	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=42123
ADAMOVICH	91	PL B268 142	M.I. Adamovich *et al.*	(WA82 Collab.)	REFID=41626
ALBRECHT	91	PL B255 634	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41443
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)	REFID=41498
AMMAR	91	PR D44 3383	R. Ammar *et al.*	(CLEO Collab.)	REFID=41847
BAI	91	PRL 66 1011	Z. Bai *et al.*	(Mark III Collab.)	REFID=41470
COFFMAN	91	PL B263 135	D.M. Coffman *et al.*	(Mark III Collab.)	REFID=41541
FRABETTI	91	PL B263 584	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=41570
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)	REFID=41311
ANJOS	90C	PR D41 2705	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41250
ANJOS	90D	PR D42 2414	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41309
ANJOS	90E	PRL 65 2630	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41396
BARLAG	90C	ZPHY C46 563	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=41097
WEIR	90B	PR D41 1384	A.J. Weir *et al.*	(Mark II Collab.)	REFID=41242
ANJOS	89	PRL 62 125	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40625
ANJOS	89B	PRL 62 722	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40630
ANJOS	89E	PL B223 267	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40770
ADLER	88C	PRL 60 89	J. Adler *et al.*	(Mark III Collab.)	REFID=40361
ALBRECHT	88I	PL B210 267	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40653
HAAS	88	PRL 60 1614	P. Haas *et al.*	(CLEO Collab.)	REFID=40601
ONG	88	PRL 60 2587	R.A. Ong *et al.*	(Mark II Collab.)	REFID=40607
RAAB	88	PR D37 2391	J.R. Raab *et al.*	(FNAL E691 Collab.)	REFID=40355
ADAMOVICH	87	EPL 4 887	M.I. Adamovich *et al.*	(Photon Emulsion Collab.)	REFID=40292
ADLER	87	PL B196 107	J. Adler *et al.*	(Mark III Collab.)	REFID=40357
BARTEL	87	ZPHY C33 339	W. Bartel *et al.*	(JADE Collab.)	REFID=40359
BALTRUSAIT...	86E	PRL 56 2140	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11477
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11471
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11472
BARTEL	85J	PL 163B 277	W. Bartel *et al.*	(JADE Collab.)	REFID=11473
ADAMOVICH	84	PL 140B 119	M.I. Adamovich *et al.*	(CERN WA58 Collab.)	REFID=11462
ALTHOFF	84G	ZPHY C22 219	M. Althoff *et al.*	(TASSO Collab.)	REFID=11464
DERRICK	84	PRL 53 1971	M. Derrick *et al.*	(HRS Collab.)	REFID=11467
SCHINDLER	81	PR D24 78	R.H. Schindler *et al.*	(Mark II Collab.)	REFID=11453
TRILLING	81	PRPL 75 57	G.H. Trilling	(LBL, UCB) J	REFID=11483
ZHOLENTZ	80	PL 96B 214	A.A. Zholents *et al.*	(NOVO)	REFID=10320
Also		SJNP 34 814	A.A. Zholents *et al.*	(NOVO)	REFID=10321
		Translated from YAF 34 1471.			
GOLDHABER	77	PL 69B 503	G. Goldhaber *et al.*	(Mark I Collab.)	REFID=11434
PERUZZI	77	PRL 39 1301	I. Peruzzi *et al.*	(LGW Collab.)	REFID=11435
PICCOLO	77	PL 70B 260	M. Piccolo *et al.*	(Mark I Collab.)	REFID=11436
PERUZZI	76	PRL 37 569	I. Peruzzi *et al.*	(Mark I Collab.)	REFID=11431
MOSTELLER	48	AST 2 No.5 30	R.A. Fisher, F. Mosteller		REFID=56417

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