$D^{\pm}$

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

$D^{\pm}$ MASS

The fit includes $D^{\pm}$, D^0, $D_s^{\pm}$, $D^{*\pm}$, D^{*0}, and $D_s^{*\pm}$ mass and mass difference measurements.

VALUE (MeV)	EVTS	DOCUMENT ID		TECN	COMMENT
1869.62± 0.20 OUR FIT Error includes scale factor of 1.1.					
1869.5 ± 0.5 OUR AVERAGE					
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. • • •					
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	$K^{\mp}\pi^{\pm}\pi^{\pm}$

[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.

$D^{\pm}$ MEAN LIFE

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

VALUE (10^{-15} s)	EVTS	DOCUMENT ID		TECN	COMMENT
1040 ± 7 OUR AVERAGE					
1039.4± 4.3± 7.0	110k	LINK	02F	FOCS	γ nucleus, $\approx$ 180 GeV
$1033.6 \pm 22.1 \,^{+\ 9.9}_{-\ 12.7}$	3777	BONVICINI	99	CLEO	$e^+e^- \approx \Upsilon(4S)$
1048 ±15 ±11	9k	FRABETTI	94D	E687	$D^+ \to K^-\pi^+\pi^+$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1075 ±40 ±18	2455	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	2992	RAAB	88	E691	Photoproduction

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

D^+ DECAY MODES

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

	Mode	Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Inclusive modes		
Γ_1	e^+ anything	(16.0 $\pm$0.4) %	
Γ_2	μ^+ anything		
Γ_3	K^- anything	(25.7 $\pm$1.4) %	
Γ_4	$\overline{K}^0$ anything + K^0 anything	(61 $\pm$5) %	
Γ_5	K^+ anything	(5.9 $\pm$0.8) %	
Γ_6	$K^*(892)^-$ anything	(6 $\pm$5) %	
Γ_7	$\overline{K}^*(892)^0$ anything	(23 $\pm$5) %	
Γ_8	$K^*(892)^+$ anything		
Γ_9	$K^*(892)^0$ anything	$<$ 6.6 %	CL=90%
Γ_{10}	η anything	(6.3 $\pm$0.7) %	
Γ_{11}	η' anything	(1.04$\pm$0.18) %	
Γ_{12}	ϕ anything	(1.03$\pm$0.12) %	
	Leptonic and semileptonic modes		
Γ_{13}	$e^+\nu_e$	$<$ 2.4 $\times 10^{-5}$	CL=90%
Γ_{14}	$\mu^+\nu_\mu$	(4.4 $\pm$0.7) $\times 10^{-4}$	
Γ_{15}	$\tau^+\nu_\tau$	$<$ 2.1 $\times 10^{-3}$	
Γ_{16}	$\overline{K}^0\ell^+\nu_\ell$	[a]	
Γ_{17}	$\overline{K}^0 e^+\nu_e$	(8.6 $\pm$0.5) %	
Γ_{18}	$\overline{K}^0\mu^+\nu_\mu$	(9.3 $\pm$0.8) %	S=1.1
Γ_{19}	$K^-\pi^+ e^+\nu_e$	(4.1 $\pm$0.6) %	S=1.1
Γ_{20}	$\overline{K}^*(892)^0 e^+\nu_e$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.66$\pm$0.21) %	
Γ_{21}	$K^-\pi^+ e^+\nu_e$ nonresonant	$<$ 7 $\times 10^{-3}$	CL=90%
Γ_{22}	$K^-\pi^+\mu^+\nu_\mu$	(3.9 $\pm$0.5) %	
Γ_{23}	$\overline{K}^*(892)^0\mu^+\nu_\mu$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.6 $\pm$0.3) %	
Γ_{24}	$K^-\pi^+\mu^+\nu_\mu$ nonresonant	(2.1 $\pm$0.5) $\times 10^{-3}$	
Γ_{25}	$(\overline{K}^*(892)\pi)^0 e^+\nu_e$		
Γ_{26}	$(\overline{K}\pi\pi)^0 e^+\nu_e$ non-$\overline{K}^*(892)$		
Γ_{27}	$K^-\pi^+\pi^0\mu^+\nu_\mu$	$<$ 1.6 $\times 10^{-3}$	CL=90%
Γ_{28}	$\pi^0 e^+\nu_e$	(4.4 $\pm$0.7) $\times 10^{-3}$	
Γ_{29}	$\pi^0\ell^+\nu_\ell$	[a]	

Γ_{30}	$\rho^0 e^+ \nu_e$		$(2.2 \pm 0.4) \times 10^{-3}$		
Γ_{31}	$\rho^0 \mu^+ \nu_\mu$		$(2.4 \pm 0.4) \times 10^{-3}$		
Γ_{32}	$\omega e^+ \nu_e$		$(1.6 \, ^{+0.7}_{-0.6}) \times 10^{-3}$		
Γ_{33}	$\phi e^+ \nu_e$		< 2.01	%	CL=90%
Γ_{34}	$\phi \mu^+ \nu_\mu$		< 2.04	%	CL=90%
Γ_{35}	$\eta \ell^+ \nu_\ell$		< 7	$\times 10^{-3}$	CL=90%
Γ_{36}	$\eta'(958) \mu^+ \nu_\mu$		< 1.1	%	CL=90%

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{37}	$\overline{K}^*(892)^0 e^+ \nu_e$		(5.49 ± 0.31) %		S=1.2
Γ_{38}	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$		(5.4 ± 0.4) %		S=1.1
Γ_{39}	$\overline{K}_1(1270)^0 \mu^+ \nu_\mu$				
Γ_{40}	$\overline{K}^*(1410)^0 \mu^+ \nu_\mu$				
Γ_{41}	$\overline{K}_0^*(1430)^0 \mu^+ \nu_\mu$		< 2.5	$\times 10^{-4}$	
Γ_{42}	$\overline{K}_2^*(1430)^0 \mu^+ \nu_\mu$				
Γ_{43}	$\overline{K}^*(1680)^0 \mu^+ \nu_\mu$		< 1.5	$\times 10^{-3}$	

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

Γ_{44}	$K_S^0 \pi^+$		(1.45 ± 0.04) %		S=1.3
Γ_{45}	$K_L^0 \pi^+$		(1.46 ± 0.05) %		
Γ_{46}	$K^- \pi^+ \pi^+$	[b]	(9.22 ± 0.21) %		S=1.1
Γ_{47}	$(K^- \pi^+)_{S-\text{wave}} \pi^+$		(7.54 ± 0.26) %		
Γ_{48}	$\overline{K}_0^*(800)^0 \pi^+$, $\overline{K}_0^*(800) \to K^- \pi^+$	[c]			
Γ_{49}	$\overline{K}_0^*(1430)^0 \pi^+$, $\overline{K}_0^*(1430)^0 \to K^- \pi^+$	[c]			
Γ_{50}	$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K^- \pi^+$		(1.22 ± 0.09) %		
Γ_{51}	$\overline{K}_2^*(1430)^0 \pi^+$, $\overline{K}_2^*(1430)^0 \to K^- \pi^+$	[c]	$(3.0 \pm 0.8) \times 10^{-4}$		
Γ_{52}	$\overline{K}^*(1680)^0 \pi^+$, $\overline{K}^*(1680)^0 \to K^- \pi^+$	[c]	$(1.6 \pm 0.6) \times 10^{-3}$		
Γ_{53}	$K^- \pi^+ \pi^+$ nonresonant	[c]			
Γ_{54}	$K_S^0 \pi^+ \pi^0$	[b]	(6.8 ± 0.5) %		S=1.9
Γ_{55}	$K_S^0 \rho^+$		(4.6 ± 1.0) %		
Γ_{56}	$\overline{K}^*(892)^0 \pi^+$, $\overline{K}^*(892)^0 \to K_S^0 \pi^0$		(1.3 ± 0.6) %		
Γ_{57}	$K_S^0 \pi^+ \pi^0$ nonresonant		$(9 \pm 7) \times 10^{-3}$		
Γ_{58}	$K^- \pi^+ \pi^+ \pi^0$	[b]	(6.00 ± 0.20) %		S=1.2
Γ_{59}	$\overline{K}^*(892)^0 \rho^+$ total, $\overline{K}^*(892)^0 \to K^- \pi^+$		(1.3 ± 0.8) %		

Γ_{60}	$\overline{K}_1(1400)^0\pi^+$, $\overline{K}_1(1400)^0 \to K^-\pi^+\pi^0$		(1.8 $\pm$0.7) %	
Γ_{61}	$K^-\rho^+\pi^+$ total		(2.9 $^{+1.0}_{-0.9}$) %	
Γ_{62}	$K^-\rho^+\pi^+$ 3-body		(1.0 $\pm$0.4) %	
Γ_{63}	$\overline{K}^*(892)^0\pi^+\pi^0$ total, $\overline{K}^*(892)^0 \to K^-\pi^+$		(4.2 $\pm$0.6) %	
Γ_{64}	$\overline{K}^*(892)^0\pi^+\pi^0$ 3-body, $\overline{K}^*(892)^0 \to K^-\pi^+$		(2.7 $\pm$0.8) %	
Γ_{65}	$K^*(892)^-\pi^+\pi^+$ 3-body, $K^*(892)^- \to K^-\pi^0$		(6 $\pm$3) $\times 10^{-3}$	
Γ_{66}	$K^-\pi^+\pi^+\pi^0$ nonresonant	[*d*]	(1.1 $\pm$0.5) %	
Γ_{67}	$K^0_S\pi^+\pi^+\pi^-$	[*b*]	(3.02$\pm$0.12) %	S=1.3
Γ_{68}	$K^0_S a_1(1260)^+$, $a_1(1260)^+ \to \pi^+\pi^+\pi^-$		(1.8 $\pm$0.3) %	
Γ_{69}	$\overline{K}_1(1400)^0\pi^+$, $\overline{K}_1(1400)^0 \to K^0_S\pi^+\pi^-$		(1.8 $\pm$0.7) %	
Γ_{70}	$K^*(892)^-\pi^+\pi^+$ 3-body, $K^*(892)^- \to K^0_S\pi^-$		(1.3 $\pm$0.6) %	
Γ_{71}	$K^0_S\rho^0\pi^+$ total		(1.8 $\pm$0.6) %	
Γ_{72}	$K^0_S\rho^0\pi^+$ 3-body		(2.1 $\pm$2.2) $\times 10^{-3}$	
Γ_{73}	$K^0_S\pi^+\pi^+\pi^-$ nonresonant		(3.6 $\pm$1.8) $\times 10^{-3}$	
Γ_{74}	$K^-3\pi^+\pi^-$	[*b*]	(5.6 $\pm$0.5) $\times 10^{-3}$	S=1.1
Γ_{75}	$\overline{K}^*(892)^0\pi^+\pi^+\pi^-$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(1.2 $\pm$0.4) $\times 10^{-3}$	
Γ_{76}	$\overline{K}^*(892)^0\rho^0\pi^+$, $\overline{K}^*(892)^0 \to K^-\pi^+$		(2.3 $\pm$0.4) $\times 10^{-3}$	
Γ_{77}	$\overline{K}^*(892)^0\pi^+\pi^+\pi^-$ no-ρ, $\overline{K}^*(892)^0 \to K^-\pi^+$			
Γ_{78}	$K^-\rho^0\pi^+\pi^+$		(1.69$\pm$0.28) $\times 10^{-3}$	
Γ_{79}	$K^-3\pi^+\pi^-$ nonresonant		(3.9 $\pm$2.9) $\times 10^{-4}$	
Γ_{80}	$K^+2K^0_S$		(4.5 $\pm$2.1) $\times 10^{-3}$	
Γ_{81}	$K^+K^-K^0_S\pi^+$		(2.3 $\pm$0.5) $\times 10^{-4}$	

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{82}	$K^0_S a_1(1260)^+$		(3.5 $\pm$0.6) %	
Γ_{83}	$K^0_S a_2(1320)^+$		$<$ 1.5 $\times 10^{-3}$	CL=90%
Γ_{84}	$\overline{K}^*(892)^0\rho^+$ total	[*d*]	(2.0 $\pm$1.2) %	
Γ_{85}	$\overline{K}^*(892)^0\rho^+$ S-wave	[*d*]	(1.5 $\pm$1.5) %	
Γ_{86}	$\overline{K}^*(892)^0\rho^+$ P-wave		$<$ 1 $\times 10^{-3}$	CL=90%
Γ_{87}	$\overline{K}^*(892)^0\rho^+$ D-wave		(9 $\pm$6) $\times 10^{-3}$	
Γ_{88}	$\overline{K}^*(892)^0\rho^+$ D-wave longitudinal		$<$ 7 $\times 10^{-3}$	CL=90%

Γ_{89}	$\overline{K}_1(1270)^0\pi^+$		< 7	$\times 10^{-3}$	CL=90%
Γ_{90}	$\overline{K}_1(1400)^0\pi^+$		(3.8 $\pm$1.3) %		
Γ_{91}	$\overline{K}^*(1410)^0\pi^+$				
Γ_{92}	$\overline{K}^*(892)^0\pi^+\pi^0$ total		(6.3 $\pm$0.8) %		
Γ_{93}	$\overline{K}^*(892)^0\pi^+\pi^0$ 3-body	[d]	(4.0 $\pm$1.2) %		
Γ_{94}	$K^*(892)^-\pi^+\pi^+$ total		—		
Γ_{95}	$K^*(892)^-\pi^+\pi^+$ 3-body		(1.4 $\pm$0.9) %		
Γ_{96}	$K^0_S f_0(980)\pi^+$				
Γ_{97}	$\overline{K}^*(892)^0 a_1(1260)^+$		(9.1 $\pm$1.8)	$\times 10^{-3}$	

Pionic modes

Γ_{98}	$\pi^+\pi^0$	(1.24$\pm$0.07)	$\times 10^{-3}$	
Γ_{99}	$\pi^+\pi^+\pi^-$	(3.21$\pm$0.19)	$\times 10^{-3}$	
Γ_{100}	$\rho^0\pi^+$	(8.2 $\pm$1.5)	$\times 10^{-4}$	
Γ_{101}	$\pi^+(\pi^+\pi^-)_{S-\text{wave}}$	(1.80$\pm$0.16)	$\times 10^{-3}$	
Γ_{102}	$\sigma\pi^+$, $\sigma \to \pi^+\pi^-$	(1.35$\pm$0.12)	$\times 10^{-3}$	
Γ_{103}	$f_0(980)\pi^+$, $f_0(980) \to \pi^+\pi^-$	(1.54$\pm$0.33)	$\times 10^{-4}$	
Γ_{104}	$f_0(1370)\pi^+$, $f_0(1370) \to \pi^+\pi^-$	(8 $\pm$4)	$\times 10^{-5}$	
Γ_{105}	$f_2(1270)\pi^+$, $f_2(1270) \to \pi^+\pi^-$	(5.0 $\pm$0.9)	$\times 10^{-4}$	
Γ_{106}	$\rho(1450)^0\pi^+$, $\rho(1450)^0 \to \pi^+\pi^-$	< 8	$\times 10^{-5}$	CL=95%
Γ_{107}	$f_0(1500)\pi^+$, $f_0(1500) \to \pi^+\pi^-$	(1.1 $\pm$0.4)	$\times 10^{-4}$	
Γ_{108}	$f_0(1710)\pi^+$, $f_0(1710) \to \pi^+\pi^-$	< 5	$\times 10^{-5}$	CL=95%
Γ_{109}	$f_0(1790)\pi^+$, $f_0(1790) \to \pi^+\pi^-$	< 6	$\times 10^{-5}$	CL=95%
Γ_{110}	$(\pi^+\pi^+)_{S-\text{wave}}\pi^-$	< 1.2	$\times 10^{-4}$	CL=95%
Γ_{111}	$\pi^+\pi^+\pi^-$ nonresonant	< 1.1	$\times 10^{-4}$	CL=95%
Γ_{112}	$\pi^+ 2\pi^0$	(4.6 $\pm$0.4)	$\times 10^{-3}$	
Γ_{113}	$\pi^+\pi^+\pi^-\pi^0$	(1.14$\pm$0.08) %		
Γ_{114}	$\eta\pi^+$, $\eta \to \pi^+\pi^-\pi^0$	(7.7 $\pm$0.7)	$\times 10^{-4}$	
Γ_{115}	$\omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$	< 3	$\times 10^{-4}$	CL=90%
Γ_{116}	$3\pi^+ 2\pi^-$	(1.63$\pm$0.16)	$\times 10^{-3}$	S=1.1

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{117}	$\eta\pi^+$	(3.39$\pm$0.29)	$\times 10^{-3}$	
Γ_{118}	$\omega\pi^+$	< 3.4	$\times 10^{-4}$	CL=90%
Γ_{119}	$\eta\rho^+$	< 7	$\times 10^{-3}$	CL=90%
Γ_{120}	$\eta'(958)\pi^+$	(5.1 $\pm$1.0)	$\times 10^{-3}$	
Γ_{121}	$\eta'(958)\rho^+$	< 5	$\times 10^{-3}$	CL=90%

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

Γ_{122}	$K^+ K^0_S$		$(\ 2.89 \pm 0.17) \times 10^{-3}$	
Γ_{123}	$K^+ K^- \pi^+$	[b]	$(\ 9.63 \pm 0.31) \times 10^{-3}$	S=1.3
Γ_{124}	$\phi\pi^+$, $\phi \to K^+ K^-$		$(\ 3.06 \pm 0.34) \times 10^{-3}$	
Γ_{125}	$K^+ \overline{K}^*(892)^0$, $\overline{K}^*(892)^0 \to K^- \pi^+$		$(\ 2.90 \pm 0.32) \times 10^{-3}$	
Γ_{126}	$K^+ \overline{K}^*_0(1430)^0$, $\overline{K}^*_0(1430)^0 \to K^- \pi^+$		$(\ 3.6\ \pm 0.4\ ) \times 10^{-3}$	
Γ_{127}	$K^+ K^- \pi^+$ nonresonant			
Γ_{128}	$K^0_S K^0_S \pi^+$		—	
Γ_{129}	$K^*(892)^+ K^0_S$, $K^*(892)^+ \to K^0_S \pi^+$		$(\ 5.3\ \pm 2.3\ ) \times 10^{-3}$	
Γ_{130}	$K^+ K^- \pi^+ \pi^0$		—	
Γ_{131}	$\phi\pi^+\pi^0$, $\phi \to K^+ K^-$		$(\ 1.1\ \pm 0.5\ )\ \%$	
Γ_{132}	$\phi\rho^+$, $\phi \to K^+ K^-$		$< 7 \times 10^{-3}$	CL=90%
Γ_{133}	$K^+ K^- \pi^+ \pi^0$ non-ϕ		$(\ 1.5\ ^{+0.7}_{-0.6}\ )\ \%$	
Γ_{134}	$K^+ K^0_S \pi^+ \pi^-$		$(\ 1.69 \pm 0.18) \times 10^{-3}$	
Γ_{135}	$K^0_S K^- \pi^+ \pi^+$		$(\ 2.32 \pm 0.18) \times 10^{-3}$	
Γ_{136}	$K^0_S K^- \pi^+ \pi^+$ (non-$K^{*+}\overline{K}^{*0}$)			
Γ_{137}	$K^+ K^- \pi^+ \pi^+ \pi^-$		$(\ 2.3\ \pm 1.2\ ) \times 10^{-4}$	

Fractions of the following modes with resonances have already appeared above as submodes of particular charged-particle modes.

Γ_{138}	$\phi\pi^+$		$(\ 6.2\ \pm 0.7\ ) \times 10^{-3}$	
Γ_{139}	$\phi\pi^+\pi^0$		$(\ 2.3\ \pm 1.0\ )\ \%$	
Γ_{140}	$\phi\rho^+$		$< 1.5\ \%$	CL=90%
Γ_{141}	$K^+ \overline{K}^*(892)^0$		$(\ 4.4\ \pm 0.5\ ) \times 10^{-3}$	
Γ_{142}	$K^*(892)^+ K^0_S$		$(\ 1.6\ \pm 0.7\ )\ \%$	
Γ_{143}	$K^*(892)^+ \overline{K}^*(892)^0$			

Doubly Cabibbo-suppressed modes

Γ_{144}	$K^+ \pi^0$		$(\ 2.37 \pm 0.32) \times 10^{-4}$	
Γ_{145}	$K^+ \pi^+ \pi^-$		$(\ 6.2\ \pm 0.7\ ) \times 10^{-4}$	
Γ_{146}	$K^+ \rho^0$		$(\ 2.4\ \pm 0.6\ ) \times 10^{-4}$	
Γ_{147}	$K^*(892)^0 \pi^+$, $K^*(892)^0 \to K^+ \pi^-$		$(\ 2.9\ \pm 0.6\ ) \times 10^{-4}$	
Γ_{148}	$K^+ f_0(980)$, $f_0(980) \to \pi^+ \pi^-$		$(\ 5.6\ \pm 3.4\ ) \times 10^{-5}$	
Γ_{149}	$K^*_2(1430)^0 \pi^+$, $K^*_2(1430)^0 \to K^+ \pi^-$		$(\ 5.0\ \pm 3.4\ ) \times 10^{-5}$	
Γ_{150}	$K^+ \pi^+ \pi^-$ nonresonant			
Γ_{151}	$K^+ K^+ K^-$		$(\ 8.7\ \pm 2.0\ ) \times 10^{-5}$	

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

Γ_{152}	$\pi^+ e^+ e^-$	*C1*		< 7.4	$\times 10^{-6}$	CL=90%
Γ_{153}	$\pi^+ \phi$, $\phi \to e^+ e^-$		[e]	$(2.7\ ^{+3.6}_{-1.8}) \times 10^{-6}$		
Γ_{154}	$\pi^+ \mu^+ \mu^-$	*C1*		< 3.9	$\times 10^{-6}$	CL=90%
Γ_{155}	$\rho^+ \mu^+ \mu^-$	*C1*		< 5.6	$\times 10^{-4}$	CL=90%
Γ_{156}	$K^+ e^+ e^-$		[f]	< 6.2	$\times 10^{-6}$	CL=90%
Γ_{157}	$K^+ \mu^+ \mu^-$		[f]	< 9.2	$\times 10^{-6}$	CL=90%
Γ_{158}	$\pi^+ e^\pm \mu^\mp$	*LF*	[g]	< 3.4	$\times 10^{-5}$	CL=90%
Γ_{159}	$\pi^+ e^+ \mu^-$					
Γ_{160}	$\pi^+ e^- \mu^+$					
Γ_{161}	$K^+ e^\pm \mu^\mp$	*LF*	[g]	< 6.8	$\times 10^{-5}$	CL=90%
Γ_{162}	$K^+ e^+ \mu^-$					
Γ_{163}	$K^+ e^- \mu^+$					
Γ_{164}	$\pi^- e^+ e^+$	*L*		< 3.6	$\times 10^{-6}$	CL=90%
Γ_{165}	$\pi^- \mu^+ \mu^+$	*L*		< 4.8	$\times 10^{-6}$	CL=90%
Γ_{166}	$\pi^- e^+ \mu^+$	*L*		< 5.0	$\times 10^{-5}$	CL=90%
Γ_{167}	$\rho^- \mu^+ \mu^+$	*L*		< 5.6	$\times 10^{-4}$	CL=90%
Γ_{168}	$K^- e^+ e^+$	*L*		< 4.5	$\times 10^{-6}$	CL=90%
Γ_{169}	$K^- \mu^+ \mu^+$	*L*		< 1.3	$\times 10^{-5}$	CL=90%
Γ_{170}	$K^- e^+ \mu^+$	*L*		< 1.3	$\times 10^{-4}$	CL=90%
Γ_{171}	$K^*(892)^- \mu^+ \mu^+$	*L*		< 8.5	$\times 10^{-4}$	CL=90%

Γ_{172} A dummy mode used by the fit. (37.3 ± 1.6) %

[a] An ℓ indicates an e or a μ mode, not a sum over these modes.

[b] 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.

[c] These subfractions of the $K^- \pi^+ \pi^+$ mode are uncertain: see the Particle Listings.

[d] The two experiments measuring this fraction are in serious disagreement. See the Particle Listings.

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

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

[g] The value is for the sum of the charge states or particle/antiparticle states indicated.

CONSTRAINED FIT INFORMATION

An overall fit to 29 branching ratios uses 46 measurements and one constraint to determine 19 parameters. The overall fit has a $\chi^2 = 34.4$ for 28 degrees of freedom.

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

x_{18}	1									
x_{19}	0	0								
x_{30}	0	0	0							
x_{37}	0	2	9	5						
x_{38}	1	57	0	0	2					
x_{44}	7	9	0	0	3	10				
x_{46}	2	27	1	0	8	28	35			
x_{54}	4	−6	0	0	−2	−6	56	−20		
x_{58}	0	15	0	0	4	15	6	55	−14	
x_{67}	5	4	0	0	1	4	74	16	68	−28
x_{74}	1	7	0	0	2	7	9	25	−5	14
x_{116}	1	6	0	0	2	6	8	23	−5	13
x_{117}	1	7	0	0	2	7	8	27	−7	15
x_{122}	2	8	0	0	2	8	32	29	10	13
x_{123}	1	21	0	0	6	21	13	76	−37	53
x_{124}	0	6	0	0	2	6	5	21	−8	14
x_{138}	0	6	0	0	2	6	5	21	−8	14
x_{172}	−32	−69	−36	−4	−25	−61	−41	−44	−27	−29
	x_{17}	x_{18}	x_{19}	x_{30}	x_{37}	x_{38}	x_{44}	x_{46}	x_{54}	x_{58}

x_{74}	4							
x_{116}	4	76						
x_{117}	3	7	6					
x_{122}	22	7	7	7				
x_{123}	−5	19	18	23	18			
x_{124}	0	5	5	39	6	24		
x_{138}	0	5	5	39	6	24	99	
x_{172}	−34	−15	−13	−15	−20	−28	−15	−15
	x_{67}	x_{74}	x_{116}	x_{117}	x_{122}	x_{123}	x_{124}	x_{138}

D^+ BRANCHING RATIOS

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

c-quark decays

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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.103 \pm 0.009 \,^{+0.009}_{-0.008}$	378	[3] ABBIENDI	99K	OPAL	$Z^0 \to c\overline{c}$

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

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

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

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	[4] ABBIENDI	99K	OPAL	$Z^0 \to c\overline{c}$
$0.086 \pm 0.017 \,^{+0.008}_{-0.007}$	69	[5] 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

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

[5] 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.

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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.096 ± 0.004 OUR AVERAGE					
$0.0958 \pm 0.0042 \pm 0.0028$	1828	[6] ABREU	00O	DLPH	$Z^0 \to c\overline{c}$
$0.095 \pm 0.006 \,^{+0.007}_{-0.006}$	854	[7] ABBIENDI	99K	OPAL	$Z^0 \to c\overline{c}$

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

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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.255±0.015±0.008	2371	[8] ABREU	00O	DLPH	$Z^0 \to c\overline{c}$

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

Inclusive modes

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.160 ±0.004 OUR AVERAGE					
0.152 ±0.009 ±0.008	521 ± 32	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
0.1613±0.0020±0.0033	8798±105	[9] ADAM	06A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.170 ±0.019 ±0.007	158	BALTRUSAIT..	85B	MRK3	e^+e^- 3.77 GeV

[9] 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 ± 0.028 ± 0.015, consistent with the isospin-invariance prediction of 1.

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.257±0.014 OUR AVERAGE					
0.247±0.013±0.012	631 ± 33	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
$0.278^{+0.036}_{-0.031}$		BARLAG	92C	ACCM	π^- Cu 230 GeV
0.271±0.023±0.024		COFFMAN	91	MRK3	e^+e^- 3.77 GeV

$[\Gamma(\overline{K}^0 \text{anything}) + \Gamma(K^0 \text{anything})]/\Gamma_{\text{total}}$ Γ_4/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.61 ±0.05 OUR AVERAGE					
0.605±0.055±0.033	244 ± 22	ABLIKIM	06U	BES2	e^+e^- at 3773 MeV
0.612±0.065±0.043		COFFMAN	91	MRK3	e^+e^- 3.77 GeV

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.059±0.008 OUR AVERAGE					
0.061±0.009±0.004	189 ± 27	ABLIKIM	07G	BES2	$e^+e^- \approx \psi(3770)$
0.055±0.013±0.009		COFFMAN	91	MRK3	e^+e^- 3.77 GeV

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.057±0.052±0.007	7.2 ± 6.5	ABLIKIM	06U	BES2	e^+e^- at 3773 MeV

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.232±0.045±0.030	189 ± 36	ABLIKIM	05P	BES	$e^+e^- \approx$ 3773 MeV

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.203	90	[10] ABLIKIM	06U	BES2	e^+e^- at 3773 MeV

[10] One-third of the $K^*(892)^+$ would decay to $K^+\pi^0$, and one-third of this ABLIKIM 06U limit is < 0.068, which is larger than the measured K^+X branching fraction.

$\Gamma(K^*(892)^0 \text{anything})/\Gamma_{\text{total}}$ Γ_9/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.066	90	ABLIKIM	05P	BES	$e^+e^- \approx$ 3773 MeV

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

This ratio includes η particles from η' decays.

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.3±0.5±0.5	1972 ± 142	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

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

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.04±0.16±0.09	82 ± 13	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\phi \text{ anything})/\Gamma_{\text{total}}$ Γ_{12}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.03±0.10±0.07	248 ± 21	HUANG	06B	CLEO	e^+e^- at $\psi(3770)$

Leptonic and semileptonic modes

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<2.4 \times 10^{-5}$	90	ARTUSO	05A	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\mu^+\nu_\mu)/\Gamma_{\text{total}}$ Γ_{14}/Γ

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

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$4.40 \pm 0.66^{+0.09}_{-0.12}$	47 ± 7	[11] ARTUSO	05A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$12.2\ ^{+11.1}_{-5.3} \pm 1.0$	3	[12] ABLIKIM	05D	BES	$e^+e^- \approx$ 3.773 GeV
$3.5 \pm 1.4 \pm 0.6$	7	[13] BONVICINI	04A	CLEO	Incl. in ARTUSO 05A
$8\ ^{+16}_{-5}\ ^{+5}_{-2}$	1	[14] BAI	98B	BES	$e^+e^- \to D^{*+}D^-$

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

[12] 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.

[13] 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.

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

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$<2.1\times10^{-3}$	90	RUBIN	06A	CLEO	e^+e^- at $\psi(3770)$

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.086 ±0.005 OUR FIT					
0.087 ±0.005 OUR AVERAGE					
0.0895±0.0159±0.0067	34 ± 6	[15] ABLIKIM	05A	BES	e^+e^- at $\psi(3770)$
0.0871±0.0038±0.0037	545 ± 24	[16] HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

[15] 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 $\Gamma(D^0\to K^-e^+\nu_e)$ / $\Gamma(D^+\to\overline{K}^0e^+\nu_e) = 1.08\pm0.22\pm0.07$; isospin invariance predicts the ratio is 1.0.

[16] HUANG 05B finds $\Gamma(D^0\to K^-e^+\nu_e)$ / $\Gamma(D^+\to\overline{K}^0e^+\nu_e) = 1.00\pm0.05\pm0.04$; isospin invariance predicts the ratio is 1.0.

$\Gamma(\overline{K}^0e^+\nu_e)/\Gamma(K^0_S\pi^+)$ Γ_{17}/Γ_{44}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
5.91±0.35 OUR FIT					
5.20±0.70±0.52	186	[17] BEAN	93C	CLEO	$e^+e^-\approx\Upsilon(4S)$

[17] BEAN 93C uses $\overline{K}^0\mu^+\nu_\mu$ as well as $\overline{K}^0e^+\nu_e$ events and makes a small phase-space adjustment to the number of the μ^+ events to use them as e^+ events. The value given is twice that in BEAN 93C because we are using $K^0_S\pi^+$ and not $\overline{K}^0\pi^+$, in the denominator.

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.093±0.008 OUR FIT Error includes scale factor of 1.1.					
0.103±0.023±0.008	29 ± 6	ABLIKIM	07	BES2	e^+e^- at 3773 MeV

$\Gamma(\overline{K}^0\mu^+\nu_\mu)/\Gamma(K^-\pi^+\pi^+)$ Γ_{18}/Γ_{46}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.01 ±0.08 OUR FIT Error includes scale factor of 1.1.				
1.019±0.076±0.065	555 ± 39	LINK	04E FOCS	γ nucleus, $\overline{E}_\gamma\approx180$ GeV

$\Gamma(\overline{K}^0\mu^+\nu_\mu)/\Gamma(\mu^+\text{anything})$ Γ_{18}/Γ_2

VALUE	EVTS	DOCUMENT ID	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
0.76±0.06	84	[18] AOKI	88 π^- emulsion

[18] From topological branching ratios in emulsion with an identified muon.

$\Gamma(K^-\pi^+e^+\nu_e)/\Gamma_{total}$ Γ_{19}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
4.1 ±0.6 OUR FIT Error includes scale factor of 1.1.					
$3.5\ ^{+0.7}_{-0.6}$ OUR AVERAGE					
3.50±0.75±0.27	29 ± 6	ABLIKIM	06O	BES2	e^+e^- at 3773 MeV
$3.5\ ^{+1.2}_{-0.7}$ ±0.4	14	BAI	91	MRK3	$e^+e^-\approx3.77$ GeV

$\Gamma(\overline{K}^*(892)^0 e^+ \nu_e)/\Gamma_{\text{total}}$ Γ_{37}/Γ

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.

VALUE (units 10^{-2})	EVTS	DOCUMENT ID	TECN	COMMENT
5.49±0.31 OUR FIT Error includes scale factor of 1.2.				
5.52±0.34 OUR AVERAGE				
5.06±1.21±0.40	28 ± 7	ABLIKIM 06O	BES2	e^+e^- at 3773 MeV
5.56±0.27±0.23	422 ± 21	[19] HUANG 05B	CLEO	e^+e^- at $\psi(3770)$

[19] HUANG 05B finds $\Gamma(D^0 \to K^{*-} e^+ \nu_e)$ / $\Gamma(D^+ \to \overline{K}^{*0} e^+ \nu_e) = 0.98 \pm 0.08 \pm 0.04$; isospin invariance predicts the ratio is 1.0.

$\Gamma(\overline{K}^*(892)^0 e^+ \nu_e)/\Gamma(K^- \pi^+ e^+ \nu_e)$ Γ_{37}/Γ_{19}

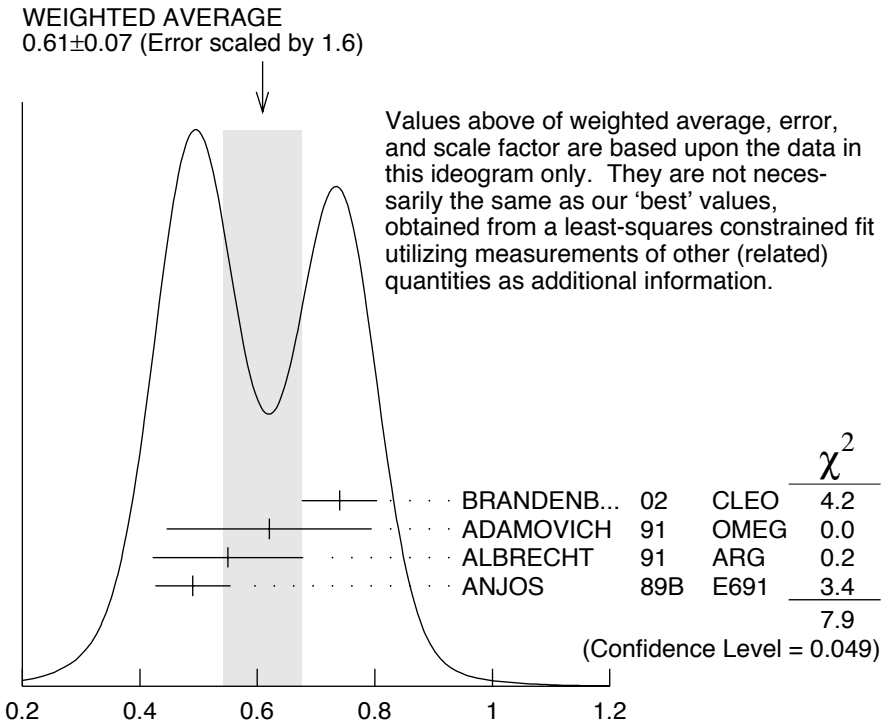
Unseen decay modes of the $\overline{K}^*(892)^0$ are included. See the end of the D^+ Listings for measurements of $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ form-factor ratios.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
1.35±0.22 OUR FIT Error includes scale factor of 1.2.				
1.0 ±0.3	35	ADAMOVICH 91	OMEG	π^- 340 GeV

$\Gamma(\overline{K}^*(892)^0 e^+ \nu_e)/\Gamma(K^- \pi^+ \pi^+)$ Γ_{37}/Γ_{46}

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.

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.596±0.035 OUR FIT Error includes scale factor of 1.3.				
0.61 ±0.07 OUR AVERAGE Error includes scale factor of 1.6. See the ideogram below.				
0.74 ±0.04 ±0.05		BRANDENB... 02	CLEO	$e^+e^- \approx \Upsilon(4S)$
0.62 ±0.15 ±0.09	35	ADAMOVICH 91	OMEG	π^- 340 GeV
0.55 ±0.08 ±0.10	880	ALBRECHT 91	ARG	$e^+e^- \approx$ 10.4 GeV
0.49 ±0.04 ±0.05		ANJOS 89B	E691	Photoproduction



$\Gamma\left(\overline{K}^*(892)^0 e^+ \nu_e\right)/\Gamma\left(K^- \pi^+ \pi^+\right)$

$\Gamma\left(K^- \pi^+ e^+ \nu_e \text{ nonresonant}\right)/\Gamma_{\text{total}}$ Γ_{21}/Γ

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

$\Gamma\left(K^- \pi^+ \mu^+ \nu_\mu\right)/\Gamma\left(\overline{K}^0 \mu^+ \nu_\mu\right)$ Γ_{22}/Γ_{18}

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

$\Gamma\left(\overline{K}^*(892)^0 \mu^+ \nu_\mu\right)/\Gamma\left(\overline{K}^0 \mu^+ \nu_\mu\right)$ Γ_{38}/Γ_{18}

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.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.58 ±0.05 OUR FIT					
0.594±0.043±0.033	555 ± 39	LINK	04E	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma\left(\overline{K}^*(892)^0 \mu^+ \nu_\mu\right)/\Gamma\left(K^- \pi^+ \pi^+\right)$ Γ_{38}/Γ_{46}

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.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.58 ±0.05 OUR FIT Error includes scale factor of 1.1.					
0.57 ±0.06 OUR AVERAGE Error includes scale factor of 1.2.					
0.72 ±0.10 ±0.05		BRANDENB...	02	CLEO	$e^+ e^- \approx \Upsilon(4S)$
0.56 ±0.04 ±0.06	875	FRABETTI	93E	E687	γBe $\overline{E}_\gamma \approx$ 200 GeV
0.46 ±0.07 ±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	[20] LINK	02J	FOCS	γ nucleus, $\approx$ 180 GeV

[20] 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.

$\Gamma(K^-\pi^+\mu^+\nu_\mu \text{ nonresonant})/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ Γ_{24}/Γ_{22}

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

$\Gamma(\pi^0 e^+\nu_e)/\Gamma_{\text{total}}$ Γ_{28}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.0044 \pm 0.0006 \pm 0.0003$	63 ± 9	[21] HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

[21] HUANG 05B finds $\Gamma(D^0 \to \pi^- e^+\nu_e)$ / 2 $\Gamma(D^+ \to \pi^0 e^+\nu_e) = 0.75^{+0.14}_{-0.11} \pm 0.04$; isospin invariance predicts the ratio is 1.0.

$\Gamma(\pi^0\ell^+\nu_\ell)/\Gamma(\overline{K}^0\ell^+\nu_\ell)$ Γ_{29}/Γ_{16}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.046 \pm 0.014 \pm 0.017$	100	[22] BARTELT	97	CLEO	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.085 \pm 0.027 \pm 0.014$	53	[23] ALAM	93	CLEO	See BARTELT 97

[22] BARTELT 97 thus directly measures the product of ratios squared of CKM matrix elements and form factors at q^2=0: $|V_{cd}/V_{cs}|^2 \cdot |f_+^\pi(0)/f_+^K(0)|^2 = 0.046 \pm 0.014 \pm 0.017$.

[23] ALAM 93 thus directly measures the product of ratios squared of CKM matrix elements and form factors at q^2=0: $|V_{cd}/V_{cs}|^2 \cdot |f_+^\pi(0)/f_+^K(0)|^2 = 0.085 \pm 0.027 \pm 0.014$.

$\Gamma(\rho^0 e^+\nu_e)/\Gamma_{\text{total}}$ Γ_{30}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0022 ± 0.0004 OUR FIT					
$0.0021 \pm 0.0004 \pm 0.0001$	27 ± 6	[24] HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

[24] 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.

$\Gamma(\rho^0 e^+\nu_e)/\Gamma(\overline{K}^*(892)^0 e^+\nu_e)$ Γ_{30}/Γ_{37}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.039 ± 0.007 OUR FIT					
$0.045 \pm 0.014 \pm 0.009$	49	[25] AITALA	97	E791	π^- nucleus, 500 GeV

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

$\Gamma(\rho^0\mu^+\nu_\mu)/\Gamma(\overline{K}^*(892)^0\mu^+\nu_\mu)$ Γ_{31}/Γ_{38}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.045 ± 0.007 OUR AVERAGE Error includes scale factor of 1.1.					
$0.041 \pm 0.006 \pm 0.004$	320 ± 44	LINK	06B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
$0.051 \pm 0.015 \pm 0.009$	54	[26] AITALA	97	E791	π^- nucleus, 500 GeV
$0.079 \pm 0.019 \pm 0.013$	39	[27] FRABETTI	97	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV

[26] AITALA 97 explicitly subtracts $D^+ \to \eta'\mu^+\nu_\mu$ and other backgrounds to get this result.

[27] 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.

$\Gamma(\omega e^+ \nu_e)/\Gamma_{total}$ Γ_{32}/Γ

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$0.0016^{+0.0007}_{-0.0006} \pm 0.0001$	$7.6^{+3.3}_{-2.7}$	HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(\phi e^+ \nu_e)/\Gamma_{total}$ Γ_{33}/Γ

Unseen decay modes of the ϕ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0201	90	ABLIKIM	06P	BES2	e^+e^- at 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0209	90	BAI	91	MRK3	$e^+e^- \approx$ 3.77 GeV

$\Gamma(\phi \mu^+ \nu_\mu)/\Gamma_{total}$ Γ_{34}/Γ

Unseen decay modes of the ϕ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0204	90	ABLIKIM	06P	BES2	e^+e^- at 3773 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0372	90	BAI	91	MRK3	$e^+e^- \approx$ 3.77 GeV

$\Gamma(\eta \ell^+ \nu_\ell)/\Gamma(\pi^0 \ell^+ \nu_\ell)$ Γ_{35}/Γ_{29}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.5	90	BARTELT	97	CLEO	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta'(958) \mu^+ \nu_\mu)/\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu)$ Γ_{36}/Γ_{38}

Decay modes of the $\eta'(958)$ not included in the search are corrected for.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.20	90	KODAMA	93B	E653	π^- emulsion 600 GeV

$\Gamma((\overline{K}^*(892)\pi)^0 e^+ \nu_e)/\Gamma_{total}$ Γ_{25}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.012	90	ANJOS	92	E691	Photoproduction

$\Gamma((\overline{K}\pi\pi)^0 e^+ \nu_e$ non-$\overline{K}^*(892))/\Gamma_{total}$ Γ_{26}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.009	90	ANJOS	92	E691	Photoproduction

$\Gamma(K^-\pi^+\pi^0\mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ Γ_{27}/Γ_{22}

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

$\Gamma(\overline{K}_1(1270)^0 \mu^+ \nu_\mu)/\Gamma(\overline{K}^*(892)^0 \mu^+ \nu_\mu)$ Γ_{39}/Γ_{38}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.78	95	ABE	99P	CDF	$\overline{p}p$ 1.8 TeV

$\Gamma(\overline{K}^*(1410)^0\mu^+\nu_\mu)/\Gamma(\overline{K}^*(892)^0\mu^+\nu_\mu)$ Γ_{40}/Γ_{38}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.60	95	ABE	99P	CDF	$\overline{p}p$ 1.8 TeV

$\Gamma(\overline{K}_0^*(1430)^0\mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ Γ_{41}/Γ_{22}

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

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

$\Gamma(\overline{K}_2^*(1430)^0\mu^+\nu_\mu)/\Gamma(\overline{K}^*(892)^0\mu^+\nu_\mu)$ Γ_{42}/Γ_{38}

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.19	95	ABE	99P	CDF	$\overline{p}p$ 1.8 TeV

$\Gamma(\overline{K}^*(1680)^0\mu^+\nu_\mu)/\Gamma(K^-\pi^+\mu^+\nu_\mu)$ Γ_{43}/Γ_{22}

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

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

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

$\Gamma(K_S^0\pi^+)/\Gamma_{\text{total}}$ Γ_{44}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.45 ±0.04 OUR FIT	Error includes scale factor of 1.3.				
1.526±0.022±0.038		[28] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
1.55 ±0.05 ±0.06	2230 ± 60	[28] HE	05	CLEO	See DOBBS 07
1.6 ±0.3 ±0.1	161	ADLER	88C	MRK3	e^+e^- 3.77 GeV

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

$\Gamma(K_S^0\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{44}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.157 ±0.005 OUR FIT	Error includes scale factor of 2.1.				
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. • • •					
0.174 ±0.012 ±0.011	473	[29] BISHAI	97	CLEO	$e^+e^- \approx \Upsilon(4S)$
0.137 ±0.015 ±0.016	264	ANJOS	90C	E691	Photoproduction

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

$\Gamma(K_L^0\pi^+)/\Gamma_{\text{total}}$ Γ_{45}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.460±0.040±0.035	2023 ± 54	[30] HE	08	CLEO	e^+e^- at $\psi(3770)$

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

$\Gamma(K^-\pi^+\pi^+)/\Gamma_{total}$ Γ_{46}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
9.22±0.21 OUR FIT Error includes scale factor of 1.1.					
9.14±0.10±0.17		[31] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
9.5 ±0.2 ±0.3	15.1k±130	[31] HE	05	CLEO	See DOBBS 07
9.3 ±0.6 ±0.8	1502	[32] BALEST	94	CLEO	$e^+e^- \approx \Upsilon(4S)$
$6.4\ ^{+1.5}_{-1.4}$		[33] 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	[34] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

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

[32] 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).

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

[34] SCHINDLER 81 (MARK-2) measures $\sigma(e^+e^- \to \psi(3770)) \times$ branching fraction to be 0.38 ± 0.05 nb. We use the MARK-3 (ADLER 88C) value of $\sigma = 4.2 \pm 0.6 \pm 0.3$ nb.

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$\Gamma((K^-\pi^+)_{S-wave}\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{47}/Γ_{46}

This is the "fit fraction" from the Dalitz-plot analysis. The $K^-\pi^+$ S-wave includes a broad scalar κ ($\overline{K}_0^*(800)$), the $\overline{K}_0^*(1430)^0$, and non-resonant background.

VALUE	DOCUMENT ID		TECN	COMMENT
0.818 ±0.021 OUR AVERAGE Error includes scale factor of 1.7.				
0.8323±0.0150±0.0008	[35] LINK	07B	FOCS	K-matrix fit, 50.5k±248 evts
0.786 ±0.014 ±0.018	AITALA	06	E791	Dalitz fit, 15.1k events

[35] 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 $\overline{K}_0^*(800)^0$) and $\overline{K}_0^*(1430)^0$.

$\Gamma(\overline{K}_0^*(800)^0\pi^+, \overline{K}_0^*(800) \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{48}/Γ_{46}

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. • • •				
0.478±0.121±0.053	AITALA	02	E791	See AITALA 06

$\Gamma(\overline{K}_0^*(1430)^0\pi^+, \overline{K}_0^*(1430)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{49}/Γ_{46}

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. • • •				
0.125±0.014±0.005	AITALA	02	E791	See AITALA 06
0.284±0.022±0.059	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx 220$ GeV
0.248±0.019±0.017	ANJOS	93	E691	γBe 90–260 GeV

$\Gamma(\overline{K}^*(892)^0\pi^+, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{50}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.133 ±0.009 OUR AVERAGE				
0.1361±0.0098±0.0030	LINK	07B	FOCS	K-matrix fit, 50.5k±248 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. • • •				
0.123 ±0.010 ±0.009	AITALA	02	E791	See AITALA 06
0.137 ±0.006 ±0.009	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx 220$ GeV
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

$\Gamma(\overline{K}^*(1410)^0\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{91}/Γ_{46}

VALUE (units 10^{-3})	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
4.8±2.1±1.7	LINK	07B	FOCS	K-matrix fit, 50.5k±248 evts

$\Gamma(\overline{K}_2^*(1430)^0\pi^+, \overline{K}_2^*(1430)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{51}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.0032±0.0009 OUR AVERAGE Error includes scale factor of 1.1.				
0.0039±0.0009±0.0005	LINK	07B	FOCS	K-matrix fit, 50.5k±248 evts
0.002 ±0.001 ±0.001	AITALA	06	E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.005 ±0.001 ±0.002	AITALA	02	E791	See AITALA 06

$\Gamma(\overline{K}^*(1680)^0\pi^+, \overline{K}^*(1680)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{52}/Γ_{46}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.017 ±0.007 OUR AVERAGE				
0.0190±0.0063±0.0043	LINK	07B	FOCS	K-matrix fit, 50.5k±248 evts
0.012 ±0.006 ±0.012	AITALA	06	E791	Dalitz fit, 15.1k events
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.025 ±0.007 ±0.003	AITALA	02	E791	See AITALA 06
0.047 ±0.006 ±0.007	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx 220$ GeV
0.030 ±0.004 ±0.013	ANJOS	93	E691	γBe 90–260 GeV

$\Gamma(K^-\pi^+\pi^+ \text{ nonresonant})/\Gamma(K^-\pi^+\pi^+)$ Γ_{53}/Γ_{46}

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. • • •				
0.130±0.058±0.044	AITALA	02	E791	See AITALA 06
0.998±0.037±0.072	FRABETTI	94G	E687	γBe, $\overline{E}_\gamma \approx 220$ GeV
0.838±0.088±0.275	ANJOS	93	E691	γBe 90–260 GeV
0.79 ±0.07 ±0.15	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S\pi^+\pi^0)/\Gamma_{total}$ Γ_{54}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.8 ±0.5 OUR FIT Error includes scale factor of 1.9.					
6.99±0.09±0.25		[36] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
7.2 ±0.2 ±0.4	5090 ± 100	[36] HE	05	CLEO	See DOBBS 07
5.1 ±1.3 ±0.8	159	ADLER	88C	MRK3	e^+e^- 3.77 GeV

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

$\Gamma(K^0_S\rho^+)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{55}/Γ_{54}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.68±0.08±0.12	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^*(892)^0\pi^+, \overline{K}^*(892)^0 \to K^0_S\pi^0)/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{56}/Γ_{54}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.19±0.06±0.06	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S\pi^+\pi^0 \text{ nonresonant})/\Gamma(K^0_S\pi^+\pi^0)$ Γ_{57}/Γ_{54}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.13±0.07±0.08	ADLER	87	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^-\pi^+\pi^+\pi^0)/\Gamma_{total}$ Γ_{58}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.00±0.20 OUR FIT Error includes scale factor of 1.2.					
5.98±0.08±0.16		[37] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.0 ±0.2 ±0.2	4840 ± 100	[37] HE	05	CLEO	See DOBBS 07
5.8 ±1.2 ±1.2	142	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV
$6.3\ ^{+1.4}_{-1.3}$ ±1.2	175	BALTRUSAIT..	86E	MRK3	See COFFMAN 92B

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

$\Gamma(K^-\pi^+\pi^+\pi^0)/\Gamma(K^-\pi^+\pi^+)$ Γ_{58}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.76±0.11±0.12	91	ANJOS	92C	E691	γBe 90–260 GeV
0.69±0.10±0.16		ANJOS	89E	E691	See ANJOS 92C

$\Gamma(\overline{K}^*(892)^0\rho^+ \text{total})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{84}/Γ_{58}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.33±0.165±0.12	[38] ANJOS	92C	E691	γBe 90–260 GeV

[38] See, however, the next entry, where the two experiments disagree completely.

$\Gamma(\overline{K}^*(892)^0\rho^+ S\text{-wave})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{85}/Γ_{58}

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. The two experiments here disagree completely.

VALUE	DOCUMENT ID		TECN	COMMENT
0.26 ±0.25 OUR AVERAGE	Error includes scale factor of 3.1.			
0.15 ±0.075±0.045	ANJOS	92C	E691	γBe 90–260 GeV
0.833±0.116±0.165	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^*(892)^0\rho^+ P\text{-wave})/\Gamma_{\text{total}}$ Γ_{86}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.001	90	ANJOS	92C	E691	γBe 90–260 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.005	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^*(892)^0\rho^+ D\text{-wave})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{87}/Γ_{58}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.15±0.09±0.045	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(\overline{K}^*(892)^0\rho^+ D\text{-wave longitudinal})/\Gamma_{\text{total}}$ Γ_{88}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.007	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}_1(1400)^0\pi^+)/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{90}/Γ_{58}

Unseen decay modes of the $\overline{K}_1(1400)^0$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.907±0.218±0.180	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^-\rho^+\pi^+\text{total})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{61}/Γ_{58}

This includes $\overline{K}^*(892)^0\rho^+$, *etc.* The next entry gives the specifically 3-body fraction.

VALUE	DOCUMENT ID		TECN	COMMENT
0.48±0.13±0.09	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^-\rho^+\pi^+\text{3-body})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{62}/Γ_{58}

VALUE	DOCUMENT ID		TECN	COMMENT
0.17 ±0.06 OUR AVERAGE				
0.18 ±0.08 ±0.04	ANJOS	92C	E691	γBe 90–260 GeV
0.159±0.065±0.060	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^0\text{total})/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{92}/Γ_{58}

This includes $\overline{K}^*(892)^0\rho^+$, *etc.* The next two entries give the specifically 3-body fraction. Unseen decay modes of the $\overline{K}^*(892)^0$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
1.05±0.11±0.08	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^0$ 3-body$)/\Gamma_{\text{total}}$ Γ_{93}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.008	90	[39] COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

[39] See, however, the next entry: ANJOS 92C sees a large signal in this channel.

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^0$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{93}/Γ_{58}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.66±0.09±0.17	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^*(892)^-\pi^+\pi^+$ 3-body$)/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{95}/Γ_{58}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.24±0.12±0.09	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^-\pi^+\pi^+\pi^0$ nonresonant$)/\Gamma_{\text{total}}$ Γ_{66}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.002	90	[40] ANJOS	92C	E691	γBe 90–260 GeV

[40] Whereas ANJOS 92C finds no signal here, COFFMAN 92B finds a fairly large one; see the next entry.

$\Gamma(K^-\pi^+\pi^+\pi^0$ nonresonant$)/\Gamma(K^-\pi^+\pi^+\pi^0)$ Γ_{66}/Γ_{58}

VALUE	DOCUMENT ID		TECN	COMMENT
0.184±0.070±0.050	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S\pi^+\pi^+\pi^-)/\Gamma_{\text{total}}$ Γ_{67}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.02 ±0.12 OUR FIT	Error includes scale factor of 1.3.				
3.122±0.046±0.096		[41] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
3.2 ±0.1 ±0.2	3210 ± 85	[41] HE	05	CLEO	See DOBBS 07
$2.1\ ^{+1.0}_{-0.9}$		[42] BARLAG	92C	ACCM	π^- Cu 230 GeV
3.3 ±0.8 ±0.2	168	ADLER	88C	MRK3	e^+e^- 3.77 GeV

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

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

$\Gamma(K^0_S\pi^+\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+)$ Γ_{67}/Γ_{46}

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.39±0.04±0.06	229 ± 17	ANJOS	92C E691	γBe 90–260 GeV

$\Gamma(K^0_S a_1(1260)^+)/\Gamma(K^0_S \pi^+\pi^+\pi^-)$ Γ_{82}/Γ_{67}

Unseen decay modes of the $a_1(1260)^+$ are included, assuming that the $a_1(1260)^+$ decays entirely to $\rho\pi$ [or at least to $(\pi\pi)_{I=1}\ \pi$].

VALUE	DOCUMENT ID		TECN	COMMENT
1.15 ±0.19 OUR AVERAGE	Error includes scale factor of 1.1.			
1.66 ±0.28 ±0.40	ANJOS	92C	E691	γBe 90–260 GeV
1.078±0.114±0.140	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S a_2(1320)^+)/\Gamma_{total}$ Γ_{83}/Γ

Unseen decay modes of the $a_2(1320)^+$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0015	90	ANJOS	92C	E691	γBe 90–260 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.004	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}_1(1270)^0\pi^+)/\Gamma_{total}$ Γ_{89}/Γ

Unseen decay modes of the $\overline{K}_1(1270)^0$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.007	90	ANJOS	92C	E691	γBe 90–260 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.011	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}_1(1400)^0\pi^+)/\Gamma_{total}$ Γ_{90}/Γ

Unseen decay modes of the $\overline{K}_1(1400)^0$ are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.009	90	[43] ANJOS	92C	E691	γBe 90–260 GeV

[43] ANJOS 92C sees no evidence for $\overline{K}_1(1400)^0\pi^+$ in either the $\overline{K}^0\pi^+\pi^+\pi^-$ or $K^-\pi^+\pi^+\pi^0$ channels, whereas COFFMAN 92B finds the $\overline{K}_1(1400)^0\pi^+$ branching fraction to be large; see the next entry.

$\Gamma(\overline{K}_1(1400)^0\pi^+)/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{90}/Γ_{67}

Unseen decay modes of the $\overline{K}_1(1400)^0$ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
1.246±0.212±0.360	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(\overline{K}^*(1410)^0\pi^+)/\Gamma_{total}$ Γ_{91}/Γ

VALUE	CL%	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
<0.007	90	COFFMAN 92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^-\pi^+\pi^+\text{total})/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{94}/Γ_{67}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.82±0.28	14	ALEEV	94	BIS2	nN 20–70 GeV

$\Gamma(K^*(892)^-\pi^+\pi^+ \text{3-body})/\Gamma_{\text{total}}$ Γ_{95}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.013	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^-\pi^+\pi^+ \text{3-body})/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{95}/Γ_{67}

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

VALUE	DOCUMENT ID		TECN	COMMENT
1.00±0.18±0.42	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^0_S\rho^0\pi^+ \text{total})/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{71}/Γ_{67}

This includes $\overline{K}^0 a_1(1260)^+$. The next two entries give the specifically 3-body reaction.

VALUE	DOCUMENT ID		TECN	COMMENT
0.60±0.10±0.17	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^0_S\rho^0\pi^+ \text{3-body})/\Gamma_{\text{total}}$ Γ_{72}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.002	90	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^0_S\rho^0\pi^+ \text{3-body})/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{72}/Γ_{67}

VALUE	DOCUMENT ID		TECN	COMMENT
0.07±0.04±0.06	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^0_S f_0(980)\pi^+)/\Gamma_{\text{total}}$ Γ_{96}/Γ

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.0025	90	ANJOS	92C	E691	γBe 90–260 GeV

$\Gamma(K^0_S\pi^+\pi^+\pi^- \text{ nonresonant})/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{73}/Γ_{67}

VALUE	DOCUMENT ID		TECN	COMMENT
0.12±0.06 OUR AVERAGE				
0.10±0.04 ±0.06	ANJOS	92C	E691	γBe 90–260 GeV
0.17±0.056±0.100	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^-3\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+)$ Γ_{74}/Γ_{46}

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

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^+\pi^-, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ Γ_{75}/Γ_{74}

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

$\Gamma(\overline{K}^*(892)^0\rho^0\pi^+, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ Γ_{76}/Γ_{74}

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

$\Gamma(\overline{K}^*(892)^0\rho^0\pi^+, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{76}/Γ_{46}

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

$\Gamma(\overline{K}^*(892)^0\pi^+\pi^+\pi^-$ no-$\rho, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{77}/Γ_{46}

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

$\Gamma(K^-\rho^0\pi^+\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{78}/Γ_{46}

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

$\Gamma(K^-\rho^0\pi^+\pi^+)/\Gamma(K^-3\pi^+\pi^-)$ Γ_{78}/Γ_{74}

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

$\Gamma(\overline{K}^*(892)^0 a_1(1260)^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{97}/Γ_{46}

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

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

$\Gamma(K^-3\pi^+\pi^-$ nonresonant$)/\Gamma(K^-3\pi^+\pi^-)$ Γ_{79}/Γ_{74}

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

$\Gamma(K^+2K^0_S)/\Gamma(K^-\pi^+\pi^+)$ Γ_{80}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.049±0.022 OUR AVERAGE Error includes scale factor of 2.4.					
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

$\Gamma(K^+K^-K^0_S\pi^+)/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ Γ_{81}/Γ_{67}

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

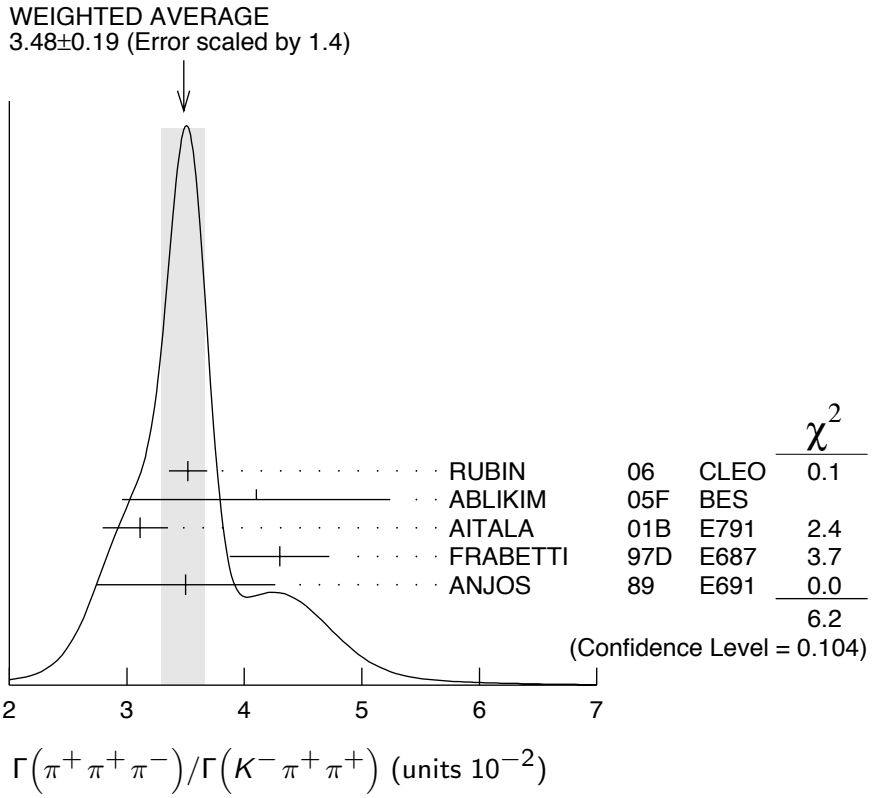
Pionic modes

$\Gamma(\pi^+\pi^0)/\Gamma(K^-\pi^+\pi^+)$ Γ_{98}/Γ_{46}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.34±0.07 OUR AVERAGE					
1.33±0.11±0.09	1229 ± 99	AUBERT,B	06F	BABR	$e^+e^- \approx \Upsilon(4S)$
1.33±0.07±0.06	914 ± 46	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
1.44±0.19±0.10	171 ± 22	ARMS	04	CLEO	$e^+e^- \approx$ 10 GeV

$\Gamma(\pi^+\pi^+\pi^-)/\Gamma(K^-\pi^+\pi^+)$ Γ_{99}/Γ_{46}

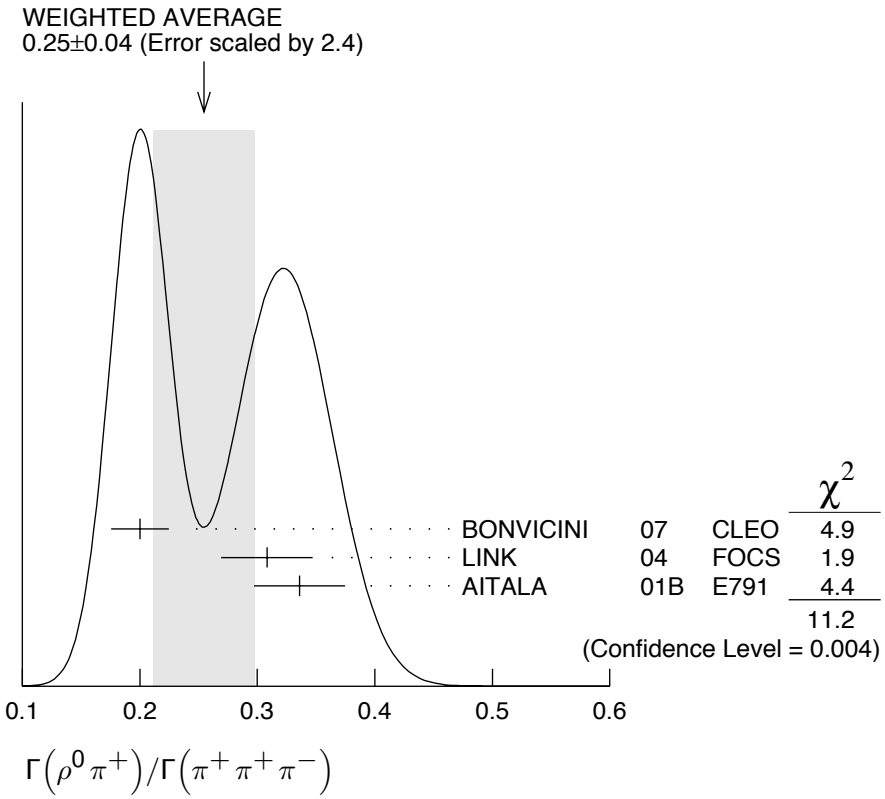
VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.48±0.19 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.					
3.52±0.11±0.12	3303 ± 95	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
4.1 ±1.1 ±0.3	85 ± 22	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
$3.11\pm0.18^{+0.16}_{-0.26}$	1172	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



$\Gamma(\rho^0\pi^+)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{100}/Γ_{99}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.25 ±0.04 OUR AVERAGE Error includes scale factor of 2.4. See the ideogram below.				
0.200 ±0.023 ±0.009	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.3082±0.0314±0.0230	LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts
0.336 ±0.032 ±0.022	AITALA	01B	E791	Dalitz fit, 1172 evts



$\Gamma(\pi^+(\pi^+\pi^-)_{S\text{=wave}})/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{101}/Γ_{99}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.5600±0.0324±0.0214	[44] LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts

[44] 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 $f_0(980)$, $f_0(1300)$, $f_0(1200–1600)$, $f_0(1500)$, and $f_0(1750)$. See LINK 04 for details and discussion.

$\Gamma(\sigma\pi^+, \sigma \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{102}/Γ_{99}

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

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

$\Gamma(f_0(980)\pi^+, f_0(980) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{103}/Γ_{99}

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

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

$\Gamma(f_0(1370)\pi^+, f_0(1370) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{104}/Γ_{99}

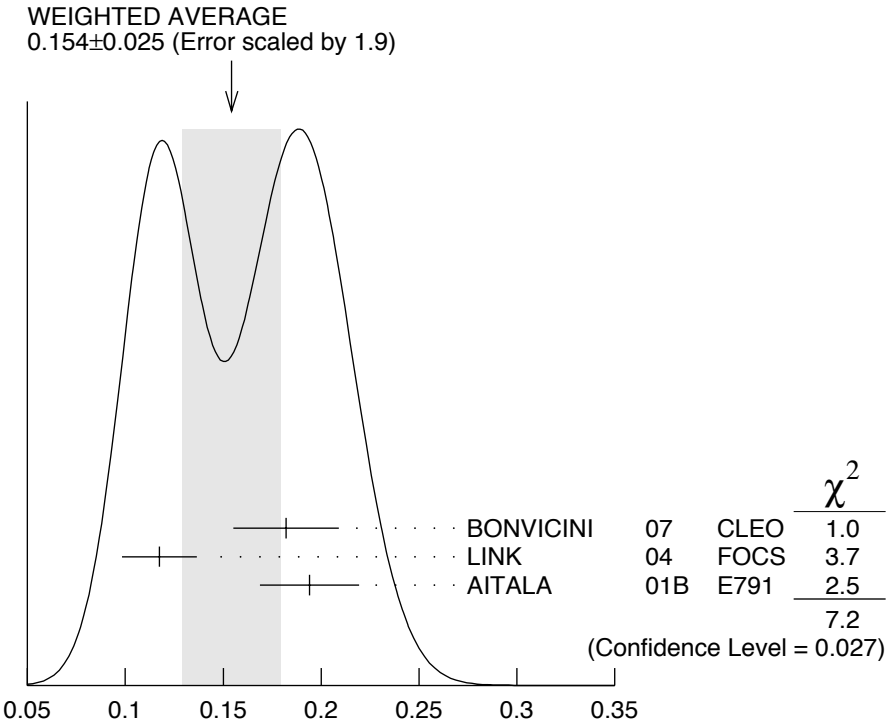
This is the "fit fraction" from the Dalitz-plot analysis.

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

$\Gamma(f_2(1270)\pi^+, f_2(1270) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{105}/Γ_{99}

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.154 ±0.025 OUR AVERAGE Error includes scale factor of 1.9. See the ideogram below.				
0.182 ±0.026 ±0.007	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
0.1174±0.0190±0.0029	LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts
0.194 ±0.025 ±0.004	AITALA	01B	E791	Dalitz fit, 1172 evts



$\Gamma(\rho(1450)^0\pi^+, \rho(1450)^0 \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{106}/Γ_{99}

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.024	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.007±0.007±0.003		AITALA	01B	E791	Dalitz fit, 1172 evts

$\Gamma(f_0(1500)\pi^+, f_0(1500) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{107}/Γ_{99}

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

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

$\Gamma(f_0(1710)\pi^+, f_0(1710) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{108}/Γ_{99}

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

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

$\Gamma(f_0(1790)\pi^+, f_0(1790) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{109}/Γ_{99}

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

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

$\Gamma((\pi^+\pi^+)_{S-\text{wave}}\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{110}/Γ_{99}

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

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

$\Gamma(\pi^+\pi^+\pi^-\ \text{nonresonant})/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{111}/Γ_{99}

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

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

$\Gamma(\pi^+ 2\pi^0)/\Gamma(K^-\pi^+\pi^+)$ Γ_{112}/Γ_{46}

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

$\Gamma(\pi^+\pi^+\pi^-\pi^0)/\Gamma(K^-\pi^+\pi^+)$ Γ_{113}/Γ_{46}

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

$\Gamma(\eta\pi^+)/\Gamma(\phi\pi^+)$ $\Gamma_{117}/\Gamma_{138}$

Unseen decay modes of the η are included.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.54±0.06 OUR FIT					
0.49±0.08	275	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta\pi^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{117}/Γ_{46}

Unseen decay modes of the η are included.

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.67±0.30 OUR FIT					
3.81±0.26±0.21	377 ± 26	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.3 ±2.3 ±1.4	99	DAOUDI	92	CLEO	See JESSOP 98

$\Gamma(\omega\pi^+)/\Gamma_{\text{total}}$ Γ_{118}/Γ

Unseen decay modes of the ω are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.4 \times 10^{-4}$	90	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(3\pi^+2\pi^-)/\Gamma(K^-\pi^+\pi^+)$ Γ_{116}/Γ_{46}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.77±0.17 OUR 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

$\Gamma(3\pi^+2\pi^-)/\Gamma(K^-3\pi^+\pi^-)$ Γ_{116}/Γ_{74}

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

$\Gamma(\eta\rho^+)/\Gamma(\phi\pi^+)$ $\Gamma_{119}/\Gamma_{138}$

Unseen decay modes of the η are included.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.11	90	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta'(958)\pi^+)/\Gamma(\phi\pi^+)$ $\Gamma_{120}/\Gamma_{138}$

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.82±0.14	126	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta'(958)\rho^+)/\Gamma(\phi\pi^+)$ $\Gamma_{121}/\Gamma_{138}$

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.86	90	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

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

$\Gamma(K^+K^0_S)/\Gamma(K^0_S\pi^+)$ Γ_{122}/Γ_{44}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.199 ±0.011 OUR FIT					
0.206 ±0.014 OUR AVERAGE					
0.222 ±0.037 ±0.013	63 ± 10	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
0.1892±0.0155±0.0073	278 ± 21	ARMS	04	CLEO	$e^+e^- \approx$ 10 GeV
0.25 ±0.04 ±0.02	129	FRABETTI	95	E687	γBe $\overline{E}_\gamma \approx$ 200 GeV
0.271 ±0.065 ±0.039	69	ANJOS	90C	E691	γBe
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
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.1996±0.0119±0.0096	949	[45] LINK	02B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.222 ±0.041 ±0.019	70	[46] BISHAI	97	CLEO	See ARMS 04

[45] This LINK 02B result is redundant with a result in the next datablock.
[46] This BISHAI 97 result is redundant with results elsewhere in the Listings.

$\Gamma(K^+ K^0_S)/\Gamma(K^- \pi^+ \pi^+)$ Γ_{122}/Γ_{46}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.13±0.17 OUR FIT	Error includes scale factor of 1.1.				
3.02±0.18±0.15	949	LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

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

3.86±0.69±0.37	70	[47] BISHAI	97	CLEO	See ARMS 04

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

$\Gamma(K^+ K^- \pi^+)/\Gamma_{\text{total}}$ Γ_{123}/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.963±0.031 OUR FIT	Error includes scale factor of 1.3.				
0.935±0.017±0.024		[48] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

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

0.97 ±0.04 ±0.04	1250 ± 40	[48] HE	05	CLEO	See DOBBS 07

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

$\Gamma(K^+ K^- \pi^+)/\Gamma(K^- \pi^+ \pi^+)$ Γ_{123}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.1045±0.0022 OUR FIT	Error includes scale factor of 1.3.				
0.1058±0.0029 OUR AVERAGE	Error includes scale factor of 1.4.				
0.117 ±0.013 ±0.007	181 ± 20	ABLIKIM	05F	BES	$e^+e^- \approx \psi(3770)$
0.107 ±0.001 ±0.002	43k	AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
0.093 ±0.010 $^{+0.008}_{-0.006}$		JUN	00	SELX	Σ^- nucleus, 600 GeV
0.0976±0.0042±0.0046		FRABETTI	95B	E687	γ Be, $\overline{E}_\gamma \approx 200$ GeV

$\Gamma(\phi\pi^+, \phi \to K^+ K^-)/\Gamma(K^+ K^- \pi^+)$ $\Gamma_{124}/\Gamma_{123}$

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.318±0.034 OUR FIT				
0.292±0.031±0.030	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(\phi\pi^+, \phi \to K^+ K^-)/\Gamma(\phi\pi^+)$ $\Gamma_{124}/\Gamma_{138}$

VALUE	DOCUMENT ID	
0.491±0.006 OUR FIT		
0.491±0.006	[49] PDG	06

[49] This is, of course, just the $\phi \to K^+ K^-$ branching fraction, but we need it to connect other modes in the fit.

$\Gamma(\phi\pi^+)/\Gamma(K^- \pi^+ \pi^+)$ Γ_{138}/Γ_{46}

Unseen decay modes of the ϕ are included. However, we now get branching fractions for resonant submodes of $K^+ K^- \pi^+$ decays from Dalitz-plot analyses.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.057±0.011±0.003	46 ± 9	ABLIKIM	06P	BES2	e^+e^- at 3773 MeV
0.062±0.017±0.006	19	ADAMOVICH	93	WA82	π^- 340 GeV
0.077±0.011±0.005	128	DAOUDI	92	CLEO	$e^+e^- \approx 10.5$ GeV
0.098±0.032±0.014	12	ALVAREZ	90C	NA14	Photoproduction
0.071±0.008±0.007	84	ANJOS	88	E691	Photoproduction
0.084±0.021±0.011	21	BALTRUSAIT..	85E	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^+\overline{K}^*(892)^0, \overline{K}^*(892)^0 \to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ $\Gamma_{125}/\Gamma_{123}$

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.301±0.020±0.025	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(K^+\overline{K}^*(892)^0)/\Gamma(K^-\pi^+\pi^+)$ Γ_{141}/Γ_{46}

Unseen decay modes of the $\overline{K}^*(892)^0$ are included. However, we now get branching fractions for resonant submodes of $K^+K^-\pi^+$ decays from Dalitz-plot analyses.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.058±0.009±0.006	73	ANJOS	88	E691	Photoproduction
0.048±0.021±0.011	14	BALTRUSAIT..	85E	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^+\overline{K}_0^*(1430)^0, \overline{K}_0^*(1430)^0 \to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ $\Gamma_{126}/\Gamma_{123}$

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

VALUE	DOCUMENT ID		TECN	COMMENT
0.370±0.035±0.018	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(K^+K^-\pi^+ \text{ nonresonant})/\Gamma(K^-\pi^+\pi^+)$ Γ_{127}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.049±0.008±0.006	95	ANJOS	88	E691	Photoproduction
0.059±0.026±0.009	37	BALTRUSAIT..	85E	MRK3	e^+e^- 3.77 GeV

$\Gamma(K^*(892)^+K_S^0)/\Gamma(K_S^0\pi^+)$ Γ_{142}/Γ_{44}

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

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.1±0.3±0.4	67	FRABETTI	95	E687	γBe $\overline{E}_\gamma \approx 200$ GeV

$\Gamma(\phi\pi^+\pi^0)/\Gamma_{\text{total}}$ Γ_{139}/Γ

Unseen decay modes of the ϕ are included.

VALUE	DOCUMENT ID		TECN	COMMENT
0.023±0.010	[50] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

$\Gamma(\phi\rho^+)/\Gamma(K^-\pi^+\pi^+)$ Γ_{140}/Γ_{46}

Unseen decay modes of the ϕ are included.

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

$\Gamma(K^+K^-\pi^+\pi^0 \text{ non-}\phi)/\Gamma_{\text{total}}$ Γ_{133}/Γ

VALUE	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.015^{+0.007}_{-0.006}}$	[51] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

$\Gamma(K^+K^-\pi^+\pi^0 \text{ non-}\phi)/\Gamma(K^-\pi^+\pi^+)$ Γ_{133}/Γ_{46}

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

$\Gamma(K^+ K^0_S \pi^+ \pi^-)/\Gamma(K^0_S \pi^+ \pi^+ \pi^-)$ Γ_{134}/Γ_{67}

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
5.62±0.39±0.40	469 ± 32	LINK	01C	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

$\Gamma(K^0_S K^- \pi^+ \pi^+)/\Gamma(K^0_S \pi^+ \pi^+ \pi^-)$ Γ_{135}/Γ_{67}

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

$\Gamma(K^+ K^- \pi^+ \pi^+ \pi^-)/\Gamma(K^- 3\pi^+ \pi^-)$ Γ_{137}/Γ_{74}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.040±0.009±0.019	38	LINK	03D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

Doubly Cabibbo-suppressed modes

$\Gamma(K^+ \pi^0)/\Gamma_{\text{total}}$ Γ_{144}/Γ

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
2.37±0.32 OUR AVERAGE					
2.52±0.47±0.26	189 ± 37	AUBERT,B	06F	BABR	$e^+e^- \approx \Upsilon(4S)$
2.28±0.36±0.17	148 ± 23	DYTMAN	06	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(K^+ \pi^+ \pi^-)/\Gamma(K^- \pi^+ \pi^+)$ Γ_{145}/Γ_{46}

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0068±0.0008 OUR AVERAGE					
0.0065±0.0008±0.0004	189 ± 24	LINK	04F	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.0077±0.0017±0.0008	59 ± 13	AITALA	97C	E791	π^- A, 500 GeV
0.0072±0.0023±0.0017	21	FRABETTI	95E	E687	γBe, $\overline{E}_\gamma$ = 220 GeV

$\Gamma(K^+ \rho^0)/\Gamma(K^+ \pi^+ \pi^-)$ $\Gamma_{146}/\Gamma_{145}$

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

$\Gamma(K^+ f_0(980), f_0(980) \to \pi^+ \pi^-)/\Gamma(K^+ \pi^+ \pi^-)$ $\Gamma_{148}/\Gamma_{145}$

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

$\Gamma(K^*(892)^0 \pi^+, K^*(892)^0 \to K^+ \pi^-)/\Gamma(K^+ \pi^+ \pi^-)$ $\Gamma_{147}/\Gamma_{145}$

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

$\Gamma(K^*_2(1430)^0 \pi^+, K^*_2(1430)^0 \to K^+ \pi^-)/\Gamma(K^+ \pi^+ \pi^-)$ $\Gamma_{149}/\Gamma_{145}$

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

$\Gamma(K^+\pi^+\pi^-\text{nonresonant})/\Gamma(K^+\pi^+\pi^-)$ $\Gamma_{150}/\Gamma_{145}$

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. • • •				
$0.36\pm0.14\pm0.07$	[52] AITALA	97C	E791	Dalitz fit, 59 evts

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

$\Gamma(K^+K^+K^-)/\Gamma(K^-\pi^+\pi^+)$ Γ_{151}/Γ_{46}

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
$9.49\pm2.17\pm0.22$	65	[53] LINK	02I	FOCS	γ nucleus, $\approx$ 180 GeV

[53] LINK 02I finds little evidence for ϕK^+ or $f_0(980)K^+$ submodes.

Rare or forbidden modes

$\Gamma(\pi^+e^+e^-)/\Gamma_{\text{total}}$ Γ_{152}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<7.4\times10^{-6}$	90		HE	05A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<5.2\times10^{-5}$	90		AITALA	99G	E791	π^- N 500 GeV
$<1.1\times10^{-4}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<6.6\times10^{-5}$	90		AITALA	96	E791	π^- N 500 GeV
$<2.5\times10^{-3}$	90		WEIR	90B	MRK2	e^+e^- 29 GeV
$<2.6\times10^{-3}$	90	39	HAAS	88	CLEO	e^+e^- 10 GeV

$\Gamma(\pi^+\phi, \phi\to e^+e^-)/\Gamma_{\text{total}}$ Γ_{153}/Γ

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
$(2.7^{+3.6}_{-1.8}\pm0.2)\times10^{-6}$	2	[54] HE	05A	CLEO	e^+e^- at $\psi(3770)$

[54] This HE 05A result is consistent with the branching fraction for $D^+ \to \phi\pi^+$, $\phi \to K^+K^-$.

$\Gamma(\pi^+\mu^+\mu^-)/\Gamma_{\text{total}}$ Γ_{154}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<3.9\times10^{-6}$	90		[55] ABAZOV	08D	D0	$p\overline{p}$, $E_{\text{cm}} = 1.96$ TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<8.8\times10^{-6}$	90		LINK	03F	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
$<1.5\times10^{-5}$	90		AITALA	99G	E791	π^- N 500 GeV
$<8.9\times10^{-5}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<1.8\times10^{-5}$	90		AITALA	96	E791	π^- N 500 GeV
$<2.2\times10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
$<5.9\times10^{-3}$	90		WEIR	90B	MRK2	e^+e^- 29 GeV
$<2.9\times10^{-3}$	90	36	HAAS	88	CLEO	e^+e^- 10 GeV

[55] This ABAZOV 08D limit is for the $\mu^+\mu^-$ mass in the continuum away from the $\phi(1020)$. The branching fraction for $D^+ \to \phi\pi^+$, $\phi \to \mu^+\mu^-$ is $(1.8 \pm 0.5 \pm 0.6) \times 10^{-6}$, consistent with known $D^+ \to \phi\pi^+$ and $\phi \to \mu^+\mu^-$ fractions.

$\Gamma(\rho^+\mu^+\mu^-)/\Gamma_{total}$ Γ_{155}/Γ

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

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<5.6 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(K^+e^+e^-)/\Gamma_{total}$ Γ_{156}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.2 \times 10^{-6}$	90	HE	05A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.0 \times 10^{-4}$	90	AITALA	99G	E791	π^- 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

$\Gamma(K^+\mu^+\mu^-)/\Gamma_{total}$ Γ_{157}/Γ

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

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<9.2 \times 10^{-6}$	90	LINK	03F	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.4 \times 10^{-5}$	90	AITALA	99G	E791	π^- 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

$\Gamma(\pi^+e^\pm\mu^\mp)/\Gamma_{total}$ Γ_{158}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.4 \times 10^{-5}$	90	AITALA	99G	E791	π^- N 500 GeV

$\Gamma(\pi^+e^+\mu^-)/\Gamma_{total}$ Γ_{159}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-4}$	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_{160}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • 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
$<3.3 \times 10^{-3}$	90	WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(K^+ e^\pm \mu^\mp)/\Gamma_{total}$ Γ_{161}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<6.8 \times 10^{-5}$	90	AITALA	99G	E791	π^- N 500 GeV

$\Gamma(K^+ e^+ \mu^-)/\Gamma_{total}$ Γ_{162}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • 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
$<3.4 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^+ e^- \mu^+)/\Gamma_{total}$ Γ_{163}/Γ

A test of lepton-family-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2 \times 10^{-4}$	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

$\Gamma(\pi^- e^+ e^+)/\Gamma_{total}$ Γ_{164}/Γ

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<3.6 \times 10^{-6}$	90	HE	05A	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<9.6 \times 10^{-5}$	90	AITALA	99G	E791	π^- 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

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

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<4.8 \times 10^{-6}$	90		LINK	03F	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<1.7 \times 10^{-5}$	90		AITALA	99G	E791	π^- 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	0	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_{166}/Γ

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<5.0 \times 10^{-5}$	90	AITALA	99G	E791	π^- N 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1 \times 10^{-4}$	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

$\Gamma(\rho^- \mu^+ \mu^+)/\Gamma_{total}$ Γ_{167}/Γ

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<5.6 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV

$\Gamma(K^- e^+ e^+)/\Gamma_{total}$ Γ_{168}/Γ

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<4.5 \times 10^{-6}$	90	HE	05A	CLEO	$e^+ e^-$ at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2 \times 10^{-4}$	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

$\Gamma(K^- \mu^+ \mu^+)/\Gamma_{total}$ Γ_{169}/Γ

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-5}$	90		LINK	03F	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<1.2 \times 10^{-4}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.2 \times 10^{-4}$	90	0	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_{170}/Γ

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$<1.3 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<4.0 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

$\Gamma(K^*(892)^- \mu^+ \mu^+)/\Gamma_{total}$ Γ_{171}/Γ

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<8.5 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV

$D^\pm$ *CP*-VIOLATING DECAY-RATE ASYMMETRIES

This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths.

$A_{CP}(K^0_S \pi^\pm)$ in $D^\pm \to K^0_S \pi^\pm$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
-0.009 ± 0.009 OUR AVERAGE					
$-0.006 \pm 0.010 \pm 0.003$		DOBBS	07	CLEO	$e^+ e^-$ at $\psi(3770)$
$-0.016 \pm 0.015 \pm 0.009$	10.6k	[56] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

[56] 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^-.

$A_{CP}(K^{\mp}2\pi^{\pm})$ in $D^+ \to K^-2\pi^+$, $D^- \to K^+2\pi^-$

VALUE	DOCUMENT ID		TECN	COMMENT
$-0.005\pm0.004\pm0.009$	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

$A_{CP}(K^{\mp}\pi^{\pm}\pi^{\pm}\pi^0)$ in $D^+ \to K^-\pi^+\pi^+\pi^0$, $D^- \to K^+\pi^-\pi^-\pi^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$+0.010\pm0.009\pm0.009$	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

$A_{CP}(K^0_S\pi^{\pm}\pi^0)$ in $D^+ \to K^0_S\pi^+\pi^0$, $D^- \to K^0_S\pi^-\pi^0$

VALUE	DOCUMENT ID		TECN	COMMENT
$+0.003\pm0.009\pm0.003$	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

$A_{CP}(K^0_S\pi^{\pm}\pi^+\pi^-)$ in $D^+ \to K^0_S\pi^+\pi^+\pi^-$, $D^- \to K^0_S\pi^-\pi^-\pi^+$

VALUE	DOCUMENT ID		TECN	COMMENT
$+0.001\pm0.011\pm0.006$	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

$A_{CP}(K^0_S K^{\pm})$ in $D^{\pm} \to K^0_S K^{\pm}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$+0.071\pm0.061\pm0.012$	949	[57] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

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

$+0.069\pm0.060\pm0.015$	949	[58] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx 180$ GeV

[57] 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^-.

[58] 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^-.

$A_{CP}(K^+K^-\pi^{\pm})$ in $D^{\pm} \to K^+K^-\pi^{\pm}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.006 ± 0.007 OUR AVERAGE					
$-0.001\pm0.015\pm0.008$		DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
$+0.014\pm0.010\pm0.008$	$43k\pm321$	[59] AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
$+0.006\pm0.011\pm0.005$	14k	[60] LINK	00B	FOCS	
-0.014 ± 0.029		[60] AITALA	97B	E791	$-0.062 < A_{CP} < +0.034$ (90% CL)
-0.031 ± 0.068		[60] FRABETTI	94I	E687	$-0.14 < A_{CP} < +0.081$ (90% CL)

[59] 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^-.

[60] 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^-.

$A_{CP}(K^{\pm}K^{*0})$ in $D^+ \to K^+\overline{K}^{*0}$, $D^- \to K^-K^{*0}$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.005 ± 0.017 OUR AVERAGE					
$+0.009\pm0.017\pm0.007$	$11k\pm122$	[61] AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
-0.010 ± 0.050		[62] AITALA	97B	E791	$-0.092 < A_{CP} < +0.072$ (90% CL)
$-0.12\ \pm0.13$		[62] FRABETTI	94I	E687	$-0.33 < A_{CP} < +0.094$ (90% CL)

[61] AUBERT 05S measures $N(D^+ \to K^+\overline{K}^{*0})/N(D_s^+ \to K^+K^-\pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-.

[62] FRABETTI 94I and AITALA 97B measure $N(D^+ \to K^+\overline{K}^*(892)^0)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

$A_{CP}(\phi\pi^\pm)$ in $D^\pm \to \phi\pi^\pm$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
-0.001 ± 0.015 OUR AVERAGE					
$+0.002\pm0.015\pm0.006$	10k$\pm$136	[63] AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
-0.028 ± 0.036		[64] AITALA	97B	E791	$-0.087 < A_{CP} < +0.031$ (90% CL)
$+0.066\pm0.086$		[64] FRABETTI	94I	E687	$-0.075 < A_{CP} < +0.21$ (90% CL)

[63] AUBERT 05S measures $N(D^+ \to \phi\pi^+)/N(D_s^+ \to K^+K^-\pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-.

[64] FRABETTI 94I and AITALA 97B measure $N(D^+ \to \phi\pi^+)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

$A_{CP}(\pi^+\pi^-\pi^\pm)$ in $D^\pm \to \pi^+\pi^-\pi^\pm$

VALUE	DOCUMENT ID		TECN	COMMENT
-0.017 ± 0.042	[65] AITALA	97B	E791	$-0.086 < A_{CP} < +0.052$ (90% CL)

[65] 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^-.

$A_{CP}(K_S^0K^\pm\pi^+\pi^-)$ in $D^\pm \to K_S^0K^\pm\pi^+\pi^-$

This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$-0.042\pm0.064\pm0.022$	523 ± 32	LINK	05E	FOCS	γ A, $\overline{E}_\gamma \approx 180$ GeV

D^+-D^- T-VIOLATING DECAY-RATE ASYMMETRIES

$A_{Tviol}(K_S^0K^\pm\pi^+\pi^-)$ in $D^\pm \to K_S^0K^\pm\pi^+\pi^-$

$C_T \equiv \vec{p}_{K^+} \cdot (\vec{p}_{\pi^+} \times \vec{p}_{\pi^-})$ is a T-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^-. $A_T \equiv [\Gamma(C_T > 0) - \Gamma(C_T < 0)] / [\Gamma(C_T > 0) + \Gamma(C_T < 0)]$ would, in the absence of strong phases, test for T violation in D^+ decays (the Γ's are partial widths). With $\overline{A}_T \equiv [\Gamma(-\overline{C}_T > 0) - \Gamma(-\overline{C}_T < 0)] / [\Gamma(-\overline{C}_T > 0) + \Gamma(-\overline{C}_T < 0)]$, the asymmetry $A_{Tviol} \equiv \frac{1}{2}(A_T - \overline{A}_T)$ tests for T violation even with nonzero strong phases.

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$+0.023\pm0.062\pm0.022$	523 ± 32	LINK	05E	FOCS	γ A, $\overline{E}_\gamma \approx 180$ GeV

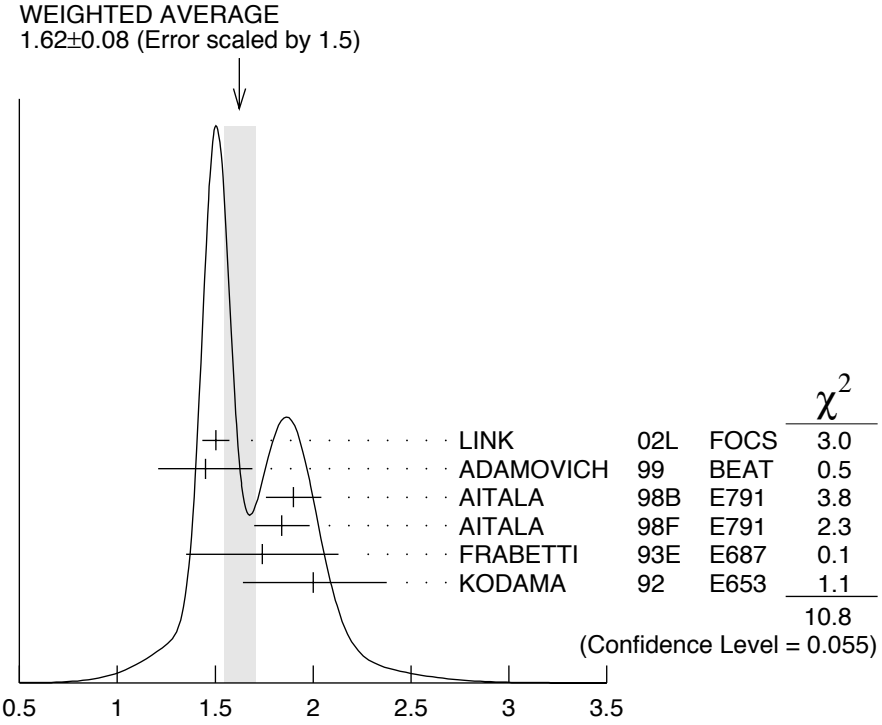
$D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$ FORM FACTORS

$r_v \equiv V(0)/A_1(0)$ in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.62 ±0.08 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
1.504±0.057±0.039	15k	[66] 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	[67] 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. • • •					
2.0 ±0.6 ±0.3	183	ANJOS	90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

[66] 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.

[67] This is slightly different from the AITALA 98B value: see ref. [5] in AITALA 98F.



$r_v \equiv V(0)/A_1(0)$ in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

$r_2 \equiv A_2(0)/A_1(0)$ in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.83 ±0.05 OUR AVERAGE					
0.875±0.049±0.064	15k	[68] 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 $\pm$0.08	$\pm$0.09	3034	AITALA	98F	E791	$\overline{K}^*(892)^0\,\mu^+\,\nu_\mu$
0.78 $\pm$0.18	$\pm$0.10	874	FRABETTI	93E	E687	$\overline{K}^*(892)^0\,\mu^+\,\nu_\mu$
0.82 $^{+0.22}_{-0.23}$	$\pm$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. • • •

0.0 $\pm$0.5	$\pm$0.2	183	ANJOS	90E	E691	$\overline{K}^*(892)^0\,e^+\,\nu_e$

[68] 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.

$r_3 \equiv A_3(0)/A_1(0)$ in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.04$\pm$0.33$\pm$0.29	3034	AITALA	98F	E791	$\overline{K}^*(892)^0\,\mu^+\,\nu_\mu$

Γ_L/Γ_T in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.13$\pm$0.08 OUR AVERAGE					
1.09$\pm$0.10$\pm$0.02	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0\,\mu^+\,\nu_\mu$
1.20$\pm$0.13$\pm$0.13	874	FRABETTI	93E	E687	$\overline{K}^*(892)^0\,\mu^+\,\nu_\mu$
1.18$\pm$0.18$\pm$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 $^{+0.6}_{-0.4}$	$\pm$0.3	183	ANJOS	90E	E691	$\overline{K}^*(892)^0\,e^+\,\nu_e$

Γ_+/Γ_- in $D^+ \to \overline{K}^*(892)^0 \ell^+ \nu_\ell$

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.22$\pm$0.06 OUR AVERAGE Error includes scale factor of 1.6.					
0.28$\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	$\overline{K}^*(892)^0\,e^+\,\nu_e$

$D^\pm$ REFERENCES

ABAZOV	08D	PRL 100 101801	V.M. Abazov *et al.*	(D0 Collab.)
HE	08	PRL 100 091801	Q. He *et al.*	(CLEO Collab.)
ABLIKIM	07	PL B644 20	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	07G	PL B658 1	M. Ablikim *et al.*	(BES Collab.)
BONVICINI	07	PR D76 012001	G. Bonvicini *et al.*	(CLEO Collab.)
DOBBS	07	PR D76 112001	S. Dobbs *et al.*	(CLEO Collab.)
LINK	07B	PL B653 1	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABLIKIM	06O	EPJ C47 31	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06P	EPJ C47 39	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	06U	PL B643 246	M. Ablikim *et al.*	(BES Collab.)
ADAM	06A	PRL 97 251801	N.E. Adam *et al.*	(CLEO Collab.)
AITALA	06	PR D73 032004	E.M. Aitala *et al.*	(FNAL E791 Collab.)
Also		PR D74 059901 (errat.)	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AUBERT,B	06F	PR D74 011107R	B. Aubert *et al.*	(BABAR Colla.b)
DYTMAN	06	PR D74 071102R	S.A. Dytman *et al.*	(CLEO Collab.)
HUANG	06B	PR D74 112005	G.S. Huang *et al.*	(CLEO Collab.)
LINK	06B	PL B637 32	J.M. Link *et al.*	(FNAL FOCUS Collab.)
PDG	06	JPG 33 1	W.-M. Yao *et al.*	(PDG Collab.)
RUBIN	06	PRL 96 081802	P. Rubin *et al.*	(CLEO Collab.)
RUBIN	06A	PR D73 112005	P. Rubin *et al.*	(CLEO Collab.)
ABLIKIM	05A	PL B608 24	M. Ablikim *et al.*	(BES Collab.)

ABLIKIM	05D	PL B610 183	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05F	PL B622 6	M. Ablikim *et al.*	(BES Collab.)
ABLIKIM	05P	PL B625 196	M. Ablikim *et al.*	(BES Collab.)
ARTUSO	05A	PRL 95 251801	M. Artuso *et al.*	(CLEO Collab.)
AUBERT	05S	PR D71 091101R	B. Aubert *et al.*	(BABAR Collab.)
HE	05	PRL 95 121801	Q. He *et al.*	(CLEO Collab.)
Also		PRL 96 199903 (errat.)	Q. He *et al.*	(CLEO Collab.)
HE	05A	PRL 95 221802	Q. He *et al.*	(CLEO Collab.)
HUANG	05B	PRL 95 181801	G.S. Huang *et al.*	(CLEO Collab.)
KAYIS-TOPAK...	05	PL B626 24	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)
LINK	05E	PL B622 239	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	05I	PL B621 72	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABLIKIM	04C	PL B597 39	M. Ablikim *et al.*	(BEPC BES Collab.)
ARMS	04	PR D69 071102R	K. Arms *et al.*	(CLEO Collab.)
BONVICINI	04A	PR D70 112004	G. Bonvicini *et al.*	(CLEO Collab.)
LINK	04	PL B585 200	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	04E	PL B598 33	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	04F	PL B601 10	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*	
LINK	03D	PL B561 225	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	03F	PL B572 21	J.M. Link *et al.*	(FNAL FOCUS Collab.)
AITALA	02	PRL 89 121801	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BRANDENB...	02	PRL 89 222001	G. Brandenburg *et al.*	(CLEO Collab.)
KAYIS-TOPAK...	02	PL B549 48	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)
LINK	02B	PRL 88 041602	J.M. Link *et al.*	(FNAL FOCUS Collab.)
Also		PRL 88 159903 (erratum)	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	02E	PL B535 43	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	02F	PL B537 192	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	02I	PL B541 227	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	02J	PL B541 243	J.M. Link *et al.*	(FNAL FOCUS Collab.)
LINK	02L	PL B544 89	J.M. Link *et al.*	(FNAL FOCUS Collab.)
AITALA	01B	PRL 86 770	E.M. Aitala *et al.*	(FNAL E791 Collab.)
LINK	01C	PRL 87 162001	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABREU	00O	EPJ C12 209	P. Abreu *et al.*	(DELPHI Collab.)
ASTIER	00D	PL B486 35	P. Astier *et al.*	(CERN NOMAD Collab.)
JUN	00	PRL 84 1857	S.Y. Jun *et al.*	(FNAL SELEX Collab.)
LINK	00B	PL B491 232	J.M. Link *et al.*	(FNAL FOCUS Collab.)
Also		PL B495 443 (erratum)	J.M. Link *et al.*	(FNAL FOCUS Collab.)
ABBIENDI	99K	EPJ C8 573	G. Abbiendi *et al.*	(OPAL Collab.)
ABE	99P	PR D60 092005	F. Abe *et al.*	(CDF Collab.)
ADAMOVICH	99	EPJ C6 35	M. Adamovich *et al.*	(CERN BEATRICE Collab.)
AITALA	99G	PL B462 401	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BONVICINI	99	PRL 82 4586	G. Bonvicini *et al.*	(CLEO Collab.)
AITALA	98B	PRL 80 1393	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	98C	PL B421 405	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	98F	PL B440 435	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BAI	98B	PL B429 188	J.Z. Bai *et al.*	(BEPC BES Collab.)
JESSOP	98	PR D58 052002	C.P. Jessop *et al.*	(CLEO Collab.)
AITALA	97	PL B397 325	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	97B	PL B403 377	E.M. Aitala *et al.*	(FNAL E791 Collab.)
AITALA	97C	PL B404 187	E.M. Aitala *et al.*	(FNAL E791 Collab.)
BARTELT	97	PL B405 373	J. Bartelt *et al.*	(CLEO Collab.)
BISHAI	97	PRL 78 3261	M. Bishai *et al.*	(CLEO Collab.)
FRABETTI	97	PL B391 235	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	97B	PL B398 239	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	97C	PL B401 131	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	97D	PL B407 79	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
AITALA	96	PRL 76 364	E.M. Aitala *et al.*	(FNAL E791 Collab.)
FRABETTI	95	PL B346 199	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	95B	PL B351 591	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	95E	PL B359 403	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KODAMA	95	PL B345 85	K. Kodama *et al.*	(FNAL E653 Collab.)
ALBRECHT	94I	ZPHY C64 375	H. Albrecht *et al.*	(ARGUS Collab.)
ALEEV	94	PAN 57 1370	A.N. Aleev *et al.*	(Serpukhov BIS-2 Collab.)
		Translated from YF 57 1443.		
BALEST	94	PRL 72 2328	R. Balest *et al.*	(CLEO Collab.)
FRABETTI	94D	PL B323 459	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94G	PL B331 217	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
FRABETTI	94I	PR D50 R2953	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
ADAMOVICH	93	PL B305 177	M.I. Adamovich *et al.*	(CERN WA82 Collab.)
AKERIB	93	PRL 71 3070	D.S. Akerib *et al.*	(CLEO Collab.)

ALAM	93	PRL 71 1311	M.S. Alam *et al.*	(CLEO Collab.)
ANJOS	93	PR D48 56	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BEAN	93C	PL B317 647	A. Bean *et al.*	(CLEO Collab.)
FRABETTI	93E	PL B307 262	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
KODAMA	93B	PL B313 260	K. Kodama *et al.*	(FNAL E653 Collab.)
ALBRECHT	92F	PL B278 202	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	92	PR D45 R2177	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	92C	PR D46 1941	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BARLAG	92C	ZPHY C55 383	S. Barlag *et al.*	(ACCMOR Collab.)
Also		ZPHY C48 29	S. Barlag *et al.*	(ACCMOR Collab.)
COFFMAN	92B	PR D45 2196	D.M. Coffman *et al.*	(Mark III Collab.)
DAOUDI	92	PR D45 3965	M. Daoudi *et al.*	(CLEO Collab.)
KODAMA	92	PL B274 246	K. Kodama *et al.*	(FNAL E653 Collab.)
KODAMA	92C	PL B286 187	K. Kodama *et al.*	(FNAL E653 Collab.)
ADAMOVICH	91	PL B268 142	M.I. Adamovich *et al.*	(WA82 Collab.)
ALBRECHT	91	PL B255 634	H. Albrecht *et al.*	(ARGUS Collab.)
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)
AMMAR	91	PR D44 3383	R. Ammar *et al.*	(CLEO Collab.)
BAI	91	PRL 66 1011	Z. Bai *et al.*	(Mark III Collab.)
COFFMAN	91	PL B263 135	D.M. Coffman *et al.*	(Mark III Collab.)
FRABETTI	91	PL B263 584	P.L. Frabetti *et al.*	(FNAL E687 Collab.)
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)
ALVAREZ	90C	PL B246 261	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)
ANJOS	90C	PR D41 2705	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	90D	PR D42 2414	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	90E	PRL 65 2630	J.C. Anjos *et al.*	(FNAL E691 Collab.)
BARLAG	90C	ZPHY C46 563	S. Barlag *et al.*	(ACCMOR Collab.)
WEIR	90B	PR D41 1384	A.J. Weir *et al.*	(Mark II Collab.)
ANJOS	89	PRL 62 125	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	89B	PRL 62 722	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ANJOS	89E	PL B223 267	J.C. Anjos *et al.*	(FNAL E691 Collab.)
ADLER	88C	PRL 60 89	J. Adler *et al.*	(Mark III Collab.)
ALBRECHT	88I	PL B210 267	H. Albrecht *et al.*	(ARGUS Collab.)
ANJOS	88	PRL 60 897	J.C. Anjos *et al.*	(FNAL E691 Collab.)
AOKI	88	PL B209 113	S. Aoki *et al.*	(WA75 Collab.)
HAAS	88	PRL 60 1614	P. Haas *et al.*	(CLEO Collab.)
ONG	88	PRL 60 2587	R.A. Ong *et al.*	(Mark II Collab.)
RAAB	88	PR D37 2391	J.R. Raab *et al.*	(FNAL E691 Collab.)
ADAMOVICH	87	EPL 4 887	M.I. Adamovich *et al.*	(Photon Emulsion Collab.)
ADLER	87	PL B196 107	J. Adler *et al.*	(Mark III Collab.)
BARTEL	87	ZPHY C33 339	W. Bartel *et al.*	(JADE Collab.)
BALTRUSAIT...	86E	PRL 56 2140	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis *et al.*	(Mark III Collab.)
BARTEL	85J	PL 163B 277	W. Bartel *et al.*	(JADE Collab.)
ADAMOVICH	84	PL 140B 119	M.I. Adamovich *et al.*	(CERN WA58 Collab.)
ALTHOFF	84G	ZPHY C22 219	M. Althoff *et al.*	(TASSO Collab.)
DERRICK	84	PRL 53 1971	M. Derrick *et al.*	(HRS Collab.)
SCHINDLER	81	PR D24 78	R.H. Schindler *et al.*	(Mark II Collab.)
TRILLING	81	PRPL 75 57	G.H. Trilling	(LBL, UCB) J
ZHOLENTZ	80	PL 96B 214	A.A. Zholents *et al.*	(NOVO)
Also		SJNP 34 814 Translated from YAF 34 1471.	A.A. Zholents *et al.*	(NOVO)
GOLDHABER	77	PL 69B 503	G. Goldhaber *et al.*	(Mark I Collab.)
PERUZZI	77	PRL 39 1301	I. Peruzzi *et al.*	(LGW Collab.)
PICCOLO	77	PL 70B 260	M. Piccolo *et al.*	(Mark I Collab.)
PERUZZI	76	PRL 37 569	I. Peruzzi *et al.*	(Mark I Collab.)

OTHER RELATED PAPERS

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