NODE=S031

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

$D^{\pm}$ MASS

NODE=S031205

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

NODE=S031205

NODE=S031M

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.

NODE=S031M;LINKAGE=P

$D^{\pm}$ MEAN LIFE

NODE=S031210

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

NODE=S031210

NODE=S031T

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
$1033.6\pm22.1^{+\ 9.9}_{-12.7}$	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.

NODE=S031T;LINKAGE=BL

D^+ DECAY MODES

NODE=S031215;NODE=S031

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

NODE=S031

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

Inclusive modes

NODE=S031;CLUMP=A

Γ_1	e^+ anything	(16.0 $\pm$0.4) %			DESIG=7
Γ_2	μ^+ anything	(17.6 $\pm$3.2) %			DESIG=22
Γ_3	K^- anything	(25.7 $\pm$1.4) %			DESIG=8
Γ_4	$\overline{K}^0$ anything + K^0 anything	(61 $\pm$5) %			DESIG=9
Γ_5	K^+ anything	(5.9 $\pm$0.8) %			DESIG=10
Γ_6	$K^*(892)^-$ anything	(6 $\pm$5) %			DESIG=248
Γ_7	$\overline{K}^*(892)^0$ anything	(23 $\pm$5) %			DESIG=244
Γ_8	$K^*(892)^+$ anything				DESIG=249
Γ_9	$K^*(892)^0$ anything	< 6.6 %		CL=90%	DESIG=245
Γ_{10}	η anything	(6.3 $\pm$0.7) %			DESIG=21
Γ_{11}	η' anything	(1.04$\pm$0.18) %			DESIG=250
Γ_{12}	ϕ anything	(1.03$\pm$0.12) %			DESIG=219

Leptonic and semileptonic modes

NODE=S031;CLUMP=B

Γ_{13}	$e^+\nu_e$	< 8.8 $\times 10^{-6}$		CL=90%	DESIG=6
Γ_{14}	$\mu^+\nu_\mu$	(3.82$\pm$0.33) $\times 10^{-4}$			DESIG=20
Γ_{15}	$\tau^+\nu_\tau$	< 1.2 $\times 10^{-3}$		CL=90%	DESIG=247
Γ_{16}	$\overline{K}^0\ell^+\nu_\ell$	[a]			DESIG=182
Γ_{17}	$\overline{K}^0 e^+\nu_e$	(8.50$\pm$0.26) %			DESIG=71
Γ_{18}	$\overline{K}^0\mu^+\nu_\mu$	(9.4 $\pm$0.8) %		S=1.1	DESIG=49
Γ_{19}	$K^-\pi^+ e^+\nu_e$	(4.1 $\pm$0.6) %		S=1.1	DESIG=34
Γ_{20}	$\overline{K}^*(892)^0 e^+\nu_e$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.66$\pm$0.21) %			DESIG=81;OUR EVAL; → NOT CHECKED ←
Γ_{21}	$K^-\pi^+ e^+\nu_e$ nonresonant	< 7 $\times 10^{-3}$		CL=90%	DESIG=45
Γ_{22}	$K^-\pi^+\mu^+\nu_\mu$	(3.9 $\pm$0.5) %			DESIG=184
Γ_{23}	$\overline{K}^*(892)^0\mu^+\nu_\mu$, $\overline{K}^*(892)^0 \to K^-\pi^+$	(3.6 $\pm$0.3) %			DESIG=185;OUR EVAL; → NOT CHECKED ←
Γ_{24}	$K^-\pi^+\mu^+\nu_\mu$ nonresonant	(2.1 $\pm$0.5) $\times 10^{-3}$			DESIG=186
Γ_{25}	$(\overline{K}^*(892)\pi)^0 e^+\nu_e$				DESIG=138
Γ_{26}	$(\overline{K}\pi\pi)^0 e^+\nu_e$ non-$\overline{K}^*(892)$				DESIG=139
Γ_{27}	$K^-\pi^+\pi^0\mu^+\nu_\mu$	< 1.6 $\times 10^{-3}$		CL=90%	DESIG=187
Γ_{28}	$\pi^0 e^+\nu_e$	(3.73$\pm$0.26) $\times 10^{-3}$			DESIG=239
Γ_{29}	$\pi^0\ell^+\nu_\ell$	[a]			DESIG=183
Γ_{30}	$\rho^0 e^+\nu_e$	(2.2 $\pm$0.4) $\times 10^{-3}$			DESIG=154
Γ_{31}	$\rho^0\mu^+\nu_\mu$	(2.5 $\pm$0.4) $\times 10^{-3}$			DESIG=188
Γ_{32}	$\omega e^+\nu_e$	(1.6 $^{+0.7}_{-0.6}$) $\times 10^{-3}$			DESIG=240
Γ_{33}	$\phi e^+\nu_e$	< 2.01 %		CL=90%	DESIG=124
Γ_{34}	$\phi\mu^+\nu_\mu$	< 2.04 %		CL=90%	DESIG=125
Γ_{35}	$\eta\ell^+\nu_\ell$	< 7 $\times 10^{-3}$		CL=90%	DESIG=212;OUR EVAL; → NOT CHECKED ←
Γ_{36}	$\eta'(958)\mu^+\nu_\mu$	< 1.1 %		CL=90%	DESIG=180

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

CLUMP=C;NODE=S031

Γ_{37}	$\overline{K}^*(892)^0 e^+\nu_e$	(5.51$\pm$0.31) %		S=1.2	DESIG=44
Γ_{38}	$\overline{K}^*(892)^0\mu^+\nu_\mu$	(5.4 $\pm$0.5) %		S=1.1	DESIG=179
Γ_{39}	$\overline{K}_1(1270)^0\mu^+\nu_\mu$				DESIG=214
Γ_{40}	$\overline{K}^*(1410)^0\mu^+\nu_\mu$				DESIG=215
Γ_{41}	$\overline{K}_0^*(1430)^0\mu^+\nu_\mu$	< 2.5 $\times 10^{-4}$			DESIG=242
Γ_{42}	$\overline{K}_2^*(1430)^0\mu^+\nu_\mu$				DESIG=216
Γ_{43}	$\overline{K}^*(1680)^0\mu^+\nu_\mu$	< 1.6 $\times 10^{-3}$			DESIG=243

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

NODE=S031;CLUMP=D

Γ_{44}	$K^0_S\pi^+$		(1.46 ± 0.04) %	S=1.3	DESIG=2
Γ_{45}	$K^0_L\pi^+$		(1.46 ± 0.05) %		DESIG=256
Γ_{46}	$K^-\pi^+\pi^+$	[b]	(9.29 ± 0.25) %	S=1.4	DESIG=1
Γ_{47}	$(K^-\pi^+)_{S-\text{wave}}\pi^+$		(7.60 ± 0.28) %		DESIG=251
Γ_{48}	$\overline{K}^*_0(800)^0\pi^+$, $\overline{K}^*_0(800)\rightarrow K^-\pi^+$	[c]			DESIG=230
Γ_{49}	$\overline{K}^*_0(1430)^0\pi^+$, $\overline{K}^*_0(1430)^0\rightarrow K^-\pi^+$	[c]			DESIG=191
Γ_{50}	$\overline{K}^*(892)^0\pi^+$, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		(1.23 ± 0.09) %		DESIG=83
Γ_{51}	$\overline{K}^*_2(1430)^0\pi^+$, $\overline{K}^*_2(1430)^0\rightarrow K^-\pi^+$	[c]	$(3.0\pm0.8)\times10^{-4}$		DESIG=232
Γ_{52}	$\overline{K}^*(1680)^0\pi^+$, $\overline{K}^*(1680)^0\rightarrow K^-\pi^+$	[c]	$(1.6\pm0.6)\times10^{-3}$		DESIG=192
Γ_{53}	$K^-\pi^+\pi^+$ nonresonant	[c]			DESIG=28
Γ_{54}	$K^0_S\pi^+\pi^0$	[b]	(6.8 ± 0.4) %	S=1.6	DESIG=12
Γ_{55}	$K^0_S\rho^+$		(4.6 ± 1.0) %		DESIG=18
Γ_{56}	$\overline{K}^*(892)^0\pi^+$, $\overline{K}^*(892)^0\rightarrow K^0_S\pi^0$		(1.3 ± 0.6) %		DESIG=82
Γ_{57}	$K^0_S\pi^+\pi^0$ nonresonant		$(9\pm7)\times10^{-3}$		DESIG=27
Γ_{58}	$K^-\pi^+\pi^+\pi^0$	[b]	(6.04 ± 0.22) %	S=1.3	DESIG=17
Γ_{59}	$\overline{K}^*(892)^0\rho^+$ total, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		(1.3 ± 0.8) %		DESIG=157;OUR EVAL; → NOT CHECKED ←
Γ_{60}	$\overline{K}_1(1400)^0\pi^+$, $\overline{K}_1(1400)^0\rightarrow K^-\pi^+\pi^0$		(1.8 ± 0.7) %		DESIG=158;OUR EVAL; → NOT CHECKED ←
Γ_{61}	$K^-\rho^+\pi^+$ total		(2.9 ± 1.0) %		DESIG=168
Γ_{62}	$K^-\rho^+\pi^+$ 3-body		(1.0 ± 0.4) %		DESIG=150
Γ_{63}	$\overline{K}^*(892)^0\pi^+\pi^0$ total, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		(4.2 ± 0.6) %		DESIG=175;OUR EVAL; → NOT CHECKED ←
Γ_{64}	$\overline{K}^*(892)^0\pi^+\pi^0$ 3-body, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		(2.7 ± 0.8) %		DESIG=194;OUR EVAL; → NOT CHECKED ←
Γ_{65}	$K^*(892)^-\pi^+\pi^+$ 3-body, $K^*(892)^-\rightarrow K^-\pi^0$		$(6\pm3)\times10^{-3}$		DESIG=177;OUR EVAL; → NOT CHECKED ←
Γ_{66}	$K^-\pi^+\pi^+\pi^0$ nonresonant	[d]	(1.1 ± 0.5) %		DESIG=153
Γ_{67}	$K^0_S\pi^+\pi^+\pi^-$	[b]	(3.04 ± 0.11) %	S=1.2	DESIG=13
Γ_{68}	$K^0_S a_1(1260)^+$, $a_1(1260)^+\rightarrow\pi^+\pi^+\pi^-$		(1.8 ± 0.3) %		DESIG=160;OUR EVAL; → NOT CHECKED ←
Γ_{69}	$\overline{K}_1(1400)^0\pi^+$, $\overline{K}_1(1400)^0\rightarrow K^0_S\pi^+\pi^-$		(1.8 ± 0.7) %		DESIG=161;OUR EVAL; → NOT CHECKED ←
Γ_{70}	$K^*(892)^-\pi^+\pi^+$ 3-body, $K^*(892)^-\rightarrow K^0_S\pi^-$		(1.3 ± 0.6) %		DESIG=163;OUR EVAL; → NOT CHECKED ←
Γ_{71}	$K^0_S\rho^0\pi^+$ total		(1.8 ± 0.6) %		DESIG=170
Γ_{72}	$K^0_S\rho^0\pi^+$ 3-body		$(2.1\pm2.2)\times10^{-3}$		DESIG=151
Γ_{73}	$K^0_S\pi^+\pi^+\pi^-$ nonresonant		$(3.6\pm1.9)\times10^{-3}$		DESIG=152
Γ_{74}	$K^-3\pi^+\pi^-$	[b]	$(5.7\pm0.5)\times10^{-3}$	S=1.1	DESIG=14
Γ_{75}	$\overline{K}^*(892)^0\pi^+\pi^+\pi^-$, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		$(1.2\pm0.4)\times10^{-3}$		DESIG=57
Γ_{76}	$\overline{K}^*(892)^0\rho^0\pi^+$, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$		$(2.3\pm0.4)\times10^{-3}$		DESIG=58
Γ_{77}	$\overline{K}^*(892)^0\pi^+\pi^+\pi^-$ no-ρ, $\overline{K}^*(892)^0\rightarrow K^-\pi^+$				DESIG=209
Γ_{78}	$K^-\rho^0\pi^+\pi^+$		$(1.71\pm0.28)\times10^{-3}$		DESIG=206
Γ_{79}	$K^-3\pi^+\pi^-$ nonresonant		$(4.0\pm2.9)\times10^{-4}$		DESIG=207
Γ_{80}	$K^+2K^0_S$		$(4.5\pm2.1)\times10^{-3}$		DESIG=59
Γ_{81}	$K^+K^-K^0_S\pi^+$		$(2.3\pm0.5)\times10^{-4}$		DESIG=227

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes. CLUMP=E;NODE=S031

Γ_{82}	$K^0_S\, a_1(1260)^+$		$(3.5 \pm 0.6)\,\%$		DESIG=143
Γ_{83}	$K^0_S\, a_2(1320)^+$		$< 1.5 \times 10^{-3}$	CL=90%	DESIG=144
Γ_{84}	$\overline{K}^*(892)^0 \rho^+$ total	[d]	$(2.0 \pm 1.2)\,\%$		DESIG=165
Γ_{85}	$\overline{K}^*(892)^0 \rho^+$ S-wave	[d]	$(1.6 \pm 1.5)\,\%$		DESIG=140
Γ_{86}	$\overline{K}^*(892)^0 \rho^+$ P-wave		$< 1 \times 10^{-3}$	CL=90%	DESIG=141
Γ_{87}	$\overline{K}^*(892)^0 \rho^+$ D-wave		$(9 \pm 6) \times 10^{-3}$		DESIG=166
Γ_{88}	$\overline{K}^*(892)^0 \rho^+$ D-wave longitudinal		$< 7 \times 10^{-3}$	CL=90%	DESIG=142
Γ_{89}	$\overline{K}_1(1270)^0 \pi^+$		$< 7 \times 10^{-3}$	CL=90%	DESIG=145
Γ_{90}	$\overline{K}_1(1400)^0 \pi^+$		$(3.8 \pm 1.3)\,\%$		DESIG=146
Γ_{91}	$\overline{K}^*(1410)^0 \pi^+$				DESIG=147
Γ_{92}	$\overline{K}^*(892)^0 \pi^+ \pi^0$ total		$(6.3 \pm 0.9)\,\%$		DESIG=167
Γ_{93}	$\overline{K}^*(892)^0 \pi^+ \pi^0$ 3-body	[d]	$(4.0 \pm 1.2)\,\%$		DESIG=149
Γ_{94}	$K^*(892)^- \pi^+ \pi^+$ total		—		DESIG=196;OUR EVAL; → NOT CHECKED ←
Γ_{95}	$K^*(892)^- \pi^+ \pi^+$ 3-body		$(1.4 \pm 0.9)\,\%$		DESIG=148
Γ_{96}	$K^0_S\, f_0(980) \pi^+$				DESIG=169
Γ_{97}	$\overline{K}^*(892)^0 a_1(1260)^+$		$(9.2 \pm 1.8) \times 10^{-3}$		DESIG=233

Pionic modes

NODE=S031;CLUMP=F

Γ_{98}	$\pi^+ \pi^0$	$(1.25 \pm 0.08) \times 10^{-3}$		DESIG=15
Γ_{99}	$\pi^+ \pi^+ \pi^-$	$(3.24 \pm 0.19) \times 10^{-3}$		DESIG=3
Γ_{100}	$\rho^0 \pi^+$	$(8.2 \pm 1.5) \times 10^{-4}$		DESIG=47
Γ_{101}	$\pi^+ (\pi^+ \pi^-)_{S-\text{wave}}$	$(1.81 \pm 0.17) \times 10^{-3}$		DESIG=237
Γ_{102}	$\sigma \pi^+ ,\ \sigma \to \pi^+ \pi^-$	$(1.37 \pm 0.12) \times 10^{-3}$		DESIG=221
Γ_{103}	$f_0(980) \pi^+ ,\ f_0(980) \to \pi^+ \pi^-$	$(1.55 \pm 0.33) \times 10^{-4}$		DESIG=222
Γ_{104}	$f_0(1370) \pi^+ ,\ f_0(1370) \to \pi^+ \pi^-$	$(8 \pm 4) \times 10^{-5}$		DESIG=224
Γ_{105}	$f_2(1270) \pi^+ ,\ f_2(1270) \to \pi^+ \pi^-$	$(5.0 \pm 0.9) \times 10^{-4}$		DESIG=228
Γ_{106}	$\rho(1450)^0 \pi^+ ,\ \rho(1450)^0 \to \pi^+ \pi^-$	$< 8 \times 10^{-5}$	CL=95%	DESIG=225
Γ_{107}	$f_0(1500) \pi^+ ,\ f_0(1500) \to \pi^+ \pi^-$	$(1.1 \pm 0.4) \times 10^{-4}$		DESIG=252
Γ_{108}	$f_0(1710) \pi^+ ,\ f_0(1710) \to \pi^+ \pi^-$	$< 5 \times 10^{-5}$	CL=95%	DESIG=253
Γ_{109}	$f_0(1790) \pi^+ ,\ f_0(1790) \to \pi^+ \pi^-$	$< 6 \times 10^{-5}$	CL=95%	DESIG=254
Γ_{110}	$(\pi^+ \pi^+)_{S-\text{wave}} \pi^-$	$< 1.2 \times 10^{-4}$	CL=95%	DESIG=255
Γ_{111}	$\pi^+ \pi^+ \pi^-$ nonresonant	$< 1.1 \times 10^{-4}$	CL=95%	DESIG=46
Γ_{112}	$\pi^+ 2\pi^0$	$(4.6 \pm 0.4) \times 10^{-3}$		DESIG=246
Γ_{113}	$\pi^+ \pi^+ \pi^- \pi^0$	$(1.15 \pm 0.08)\,\%$		DESIG=50
Γ_{114}	$\eta \pi^+ ,\ \eta \to \pi^+ \pi^- \pi^0$	$(7.7 \pm 0.7) \times 10^{-4}$		DESIG=84;OUR EVAL; → NOT CHECKED ←
Γ_{115}	$\omega \pi^+ ,\ \omega \to \pi^+ \pi^- \pi^0$	$< 3 \times 10^{-4}$	CL=90%	DESIG=85;OUR EVAL; → NOT CHECKED ←
Γ_{116}	$3\pi^+ 2\pi^-$	$(1.64 \pm 0.16) \times 10^{-3}$	S=1.1	DESIG=48

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes. CLUMP=G;NODE=S031

Γ_{117}	$\eta \pi^+$	$(3.36 \pm 0.18) \times 10^{-3}$	S=1.1	DESIG=51
Γ_{118}	$\eta \pi^+ \pi^0$	$(1.38 \pm 0.35) \times 10^{-3}$		DESIG=257
Γ_{119}	$\eta \rho^+$	$< 6 \times 10^{-3}$	CL=90%	DESIG=91
Γ_{120}	$\omega \pi^+$	$< 3.4 \times 10^{-4}$	CL=90%	DESIG=52
Γ_{121}	$\eta'(958) \pi^+$	$(4.44 \pm 0.35) \times 10^{-3}$		DESIG=90
Γ_{122}	$\eta'(958) \pi^+ \pi^0$	$(1.6 \pm 0.5) \times 10^{-3}$		DESIG=258
Γ_{123}	$\eta'(958) \rho^+$	$< 5 \times 10^{-3}$	CL=90%	DESIG=92

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

NODE=S031;CLUMP=H

Γ_{124}	$K^+ K^0_S$		$(3.05\pm0.13)\times10^{-3}$	S=1.3	DESIG=16
Γ_{125}	$K^+ K^- \pi^+$	[b]	$(9.72\pm0.33)\times10^{-3}$	S=1.5	DESIG=4
Γ_{126}	$\phi\pi^+$, $\phi \to K^+ K^-$		$(2.71\pm0.11)\times10^{-3}$	S=1.4	DESIG=89
Γ_{127}	$K^+ \overline{K}^*(892)^0$, $\overline{K}^*(892)^0 \to K^- \pi^+$		$(2.50^{+0.10}_{-0.15})\times10^{-3}$		DESIG=86
Γ_{128}	$K^+ \overline{K}^*_0(1430)^0$, $\overline{K}^*_0(1430)^0 \to K^- \pi^+$		$(1.83\pm0.35)\times10^{-3}$		DESIG=238
Γ_{129}	$K^+ \overline{K}^*_2(1430)^0$, $\overline{K}^*_2 \to K^- \pi^+$		$(1.7\ ^{+1.2}_{-0.8})\times10^{-4}$		DESIG=259
Γ_{130}	$K^+ K^*_0(800)$, $K^*_0 \to K^- \pi^+$		$(6.8\ ^{+3.5}_{-2.1})\times10^{-4}$		DESIG=260
Γ_{131}	$a_0(1450)^0 \pi^+$, $a^0_0 \to K^+ K^-$		$(4.5\ ^{+7.0}_{-1.8})\times10^{-4}$		DESIG=261
Γ_{132}	$\phi(1680)\pi^+$, $\phi \to K^+ K^-$		$(5.0\ ^{+3.8}_{-1.9})\times10^{-5}$		DESIG=262
Γ_{133}	$K^+ K^- \pi^+$ nonresonant				DESIG=26
Γ_{134}	$K^0_S K^0_S \pi^+$		—		DESIG=202;OUR EVAL; → NOT CHECKED ←
Γ_{135}	$K^*(892)^+ K^0_S$, $K^*(892)^+ \to K^0_S \pi^+$		$(5.3\ \pm2.3\ )\times10^{-3}$		DESIG=203;OUR EVAL; → NOT CHECKED ←
Γ_{136}	$K^+ K^- \pi^+ \pi^0$		—		DESIG=87;OUR EVAL; → NOT CHECKED ←
Γ_{137}	$\phi\pi^+\pi^0$, $\phi \to K^+ K^-$		$(1.1\ \pm0.5\ )$ %		DESIG=173;OUR EVAL; → NOT CHECKED ←
Γ_{138}	$\phi\rho^+$, $\phi \to K^+ K^-$		$< 7 \times10^{-3}$	CL=90%	DESIG=127;OUR EVAL; → NOT CHECKED ←
Γ_{139}	$K^+ K^- \pi^+ \pi^0$ non-ϕ		$(1.5\ ^{+0.7}_{-0.6})$ %		DESIG=54
Γ_{140}	$K^+ K^0_S \pi^+ \pi^-$		$(1.71\pm0.18)\times10^{-3}$		DESIG=134
Γ_{141}	$K^0_S K^- \pi^+ \pi^+$		$(2.34\pm0.18)\times10^{-3}$		DESIG=130
Γ_{142}	$K^0_S K^- \pi^+ \pi^+$ (non-$K^{*+}\overline{K}^{*0}$)				DESIG=136
Γ_{143}	$K^+ K^- \pi^+ \pi^+ \pi^-$		$(2.3\ \pm1.2\ )\times10^{-4}$		DESIG=88

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

CLUMP=I;NODE=S031

Γ_{144}	$\phi\pi^+$		$(5.53\pm0.24)\times10^{-3}$	S=1.4	DESIG=24
Γ_{145}	$\phi\pi^+\pi^0$		$(2.3\ \pm1.0\ )$ %		DESIG=53
Γ_{146}	$\phi\rho^+$		< 1.5 %	CL=90%	DESIG=93
Γ_{147}	$K^+ \overline{K}^*(892)^0$		$(4.4\ \pm0.5\ )\times10^{-3}$		DESIG=25;OUR EVAL; → NOT CHECKED ←
Γ_{148}	$K^*(892)^+ K^0_S$		$(1.6\ \pm0.7\ )$ %		DESIG=197
Γ_{149}	$K^*(892)^+ \overline{K}^*(892)^0$				DESIG=135

Doubly Cabibbo-suppressed modes

NODE=S031;CLUMP=K

Γ_{150}	$K^+ \pi^0$		$(2.37\pm0.32)\times10^{-4}$		DESIG=234
Γ_{151}	$K^+ \pi^+ \pi^-$		$(6.3\ \pm0.7\ )\times10^{-4}$		DESIG=5
Γ_{152}	$K^+ \rho^0$		$(2.4\ \pm0.6\ )\times10^{-4}$		DESIG=204
Γ_{153}	$K^*(892)^0 \pi^+$, $K^*(892)^0 \to K^+ \pi^-$		$(2.9\ \pm0.6\ )\times10^{-4}$		DESIG=205
Γ_{154}	$K^+ f_0(980)$, $f_0(980) \to \pi^+ \pi^-$		$(5.6\ \pm3.4\ )\times10^{-5}$		DESIG=235
Γ_{155}	$K^*_2(1430)^0 \pi^+$, $K^*_2(1430)^0 \to K^+ \pi^-$		$(5.0\ \pm3.4\ )\times10^{-5}$		DESIG=236
Γ_{156}	$K^+ \pi^+ \pi^-$ nonresonant				DESIG=211
Γ_{157}	$K^+ K^+ K^-$		$(8.8\ \pm2.0\ )\times10^{-5}$		DESIG=181

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

NODE=S031;CLUMP=J

Γ_{158}	$\pi^+ e^+ e^-$	$C1$		$< 7.4 \times10^{-6}$	CL=90%	DESIG=41
Γ_{159}	$\pi^+ \phi$, $\phi \to e^+ e^-$		[e]	$(2.7\ ^{+3.6}_{-1.8})\times10^{-6}$		DESIG=241
Γ_{160}	$\pi^+ \mu^+ \mu^-$	$C1$		$< 3.9 \times10^{-6}$	CL=90%	DESIG=42
Γ_{161}	$\rho^+ \mu^+ \mu^-$	$C1$		$< 5.6 \times10^{-4}$	CL=90%	DESIG=198
Γ_{162}	$K^+ e^+ e^-$		[f]	$< 6.2 \times10^{-6}$	CL=90%	DESIG=113
Γ_{163}	$K^+ \mu^+ \mu^-$		[f]	$< 9.2 \times10^{-6}$	CL=90%	DESIG=114
Γ_{164}	$\pi^+ e^\pm \mu^\mp$	LF	[g]	$< 3.4 \times10^{-5}$	CL=90%	DESIG=43
Γ_{165}	$\pi^+ e^+ \mu^-$					DESIG=110
Γ_{166}	$\pi^+ e^- \mu^+$					DESIG=111

Γ_{167}	$K^+ e^\pm \mu^\mp$	LF	[g] $<$ 6.8	$\times 10^{-5}$	CL=90%	DESIG=213
Γ_{168}	$K^+ e^+ \mu^-$					DESIG=115
Γ_{169}	$K^+ e^- \mu^+$					DESIG=116
Γ_{170}	$\pi^- e^+ e^+$	L	$<$ 3.6	$\times 10^{-6}$	CL=90%	DESIG=117
Γ_{171}	$\pi^- \mu^+ \mu^+$	L	$<$ 4.8	$\times 10^{-6}$	CL=90%	DESIG=118
Γ_{172}	$\pi^- e^+ \mu^+$	L	$<$ 5.0	$\times 10^{-5}$	CL=90%	DESIG=119
Γ_{173}	$\rho^- \mu^+ \mu^+$	L	$<$ 5.6	$\times 10^{-4}$	CL=90%	DESIG=199
Γ_{174}	$K^- e^+ e^+$	L	$<$ 4.5	$\times 10^{-6}$	CL=90%	DESIG=120
Γ_{175}	$K^- \mu^+ \mu^+$	L	$<$ 1.3	$\times 10^{-5}$	CL=90%	DESIG=121
Γ_{176}	$K^- e^+ \mu^+$	L	$<$ 1.3	$\times 10^{-4}$	CL=90%	DESIG=122
Γ_{177}	$K^*(892)^- \mu^+ \mu^+$	L	$<$ 8.5	$\times 10^{-4}$	CL=90%	DESIG=200

NODE=S031;CLUMP=Z

Γ_{178}	A dummy mode used by the fit.	(36.7 $\pm$1.6) %	S=1.1	DESIG=19

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

[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. LINKAGE=SDQ

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

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

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

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

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

CONSTRAINED FIT INFORMATION

An overall fit to 33 branching ratios uses 50 measurements and one constraint to determine 20 parameters. The overall fit has a $\chi^2 = 37.5$ for 31 degrees of freedom.

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

	x_{17}	x_{18}	x_{19}	x_{30}	x_{37}	x_{38}	x_{44}	x_{46}	x_{54}	x_{58}
x_{18}	0									
x_{19}	0	0								
x_{30}	0	0	0							
x_{37}	0	3	9	5						
x_{38}	0	58	0	0	3					
x_{44}	0	7	0	0	2	7				
x_{46}	0	31	1	0	8	31	22			
x_{54}	0	−11	0	0	−3	−11	53	−34		
x_{58}	0	20	0	0	6	21	4	65	−17	
x_{67}	0	2	0	0	1	2	72	6	60	−28
x_{74}	0	9	0	0	2	9	6	29	−10	19
x_{116}	0	8	0	0	2	8	6	27	−9	17
x_{117}	0	6	0	0	2	6	4	19	−7	12
x_{121}	0	2	0	0	1	2	1	7	−3	5
x_{124}	0	5	0	0	1	5	19	17	3	10
x_{125}	0	26	1	0	7	26	11	82	−37	60
x_{126}	0	21	0	0	6	21	9	67	−31	49
x_{144}	0	19	0	0	5	20	9	62	−29	46
x_{178}	−17	−75	−38	−4	−27	−66	−32	−49	−11	−39

	x_{67}	x_{74}	x_{116}	x_{117}	x_{121}	x_{124}	x_{125}	x_{126}	x_{144}
x_{74}	2								
x_{116}	2	77							
x_{117}	1	5	5						
x_{121}	0	2	2	2					
x_{124}	12	5	5	3	1				
x_{125}	−3	24	22	17	8	13			
x_{126}	−2	19	18	15	10	11	82		
x_{144}	−2	18	17	15	10	10	76	93	
x_{178}	−23	−18	−16	−10	−5	−12	−39	−33	−31

D^+ BRANCHING RATIOS NODE=S031220

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

—— c-quark decays —— NODE=S031305

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

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. NODE=S031B93

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

NODE=S031B93

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

$\Gamma(c \to \mu^+ \text{anything})/\Gamma(c \to \text{anything})$ NODE=S031R6

For the Summary Table, we only use the average of e^+ and μ^+ measurements from $Z^0 \to c\bar{c}$ decays; see the next data block. NODE=S031R6

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	$Z^0 \to c\bar{c}$
$0.086 \pm 0.017 {}^{+0.008}_{-0.007}$	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

NODE=S031R6

[4] ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \to D^0 \pi^+$ decays in $Z^0 \to c\bar{c}$. NODE=S031R6;LINKAGE=KB

[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. NODE=S031R6;LINKAGE=E

$\Gamma(c \to \ell^+ \text{anything})/\Gamma(c \to \text{anything})$ NODE=S031B94

This is an average (not a sum) of e^+ and μ^+ measurements. NODE=S031B94

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	$Z^0 \to c\bar{c}$
$0.095 \pm 0.006 {}^{+0.007}_{-0.006}$	854	[7] ABBIENDI	99K	OPAL	$Z^0 \to c\bar{c}$

NODE=S031B94

[6] ABREU 00O uses leptons opposite fully reconstructed $D^*(2010)^+$, D^+, or D^0 mesons. NODE=S031B94;LINKAGE=A

[7] ABBIENDI 99K uses the excess of right-sign over wrong-sign leptons opposite reconstructed $D^*(2010)^+ \to D^0 \pi^+$ decays in $Z^0 \to c\bar{c}$. NODE=S031B94;LINKAGE=KB

$\Gamma(c \to D^*(2010)^+ \text{anything})/\Gamma(c \to \text{anything})$ NODE=S031C3

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

NODE=S031C3

[8] ABREU 00O uses slow pions opposite fully reconstructed $D^*(2010)^+$, D^+, or D^0 mesons as a signal of $D^*(2010)^-$ production. NODE=S031C3;LINKAGE=A

Inclusive modes NODE=S031310

$\Gamma(e^+ \text{anything})/\Gamma_{\text{total}}$ Γ_1/Γ NODE=S031R5

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

NODE=S031R5

[9] Using the D^+ and D^0 lifetimes, ADAM 06A finds that the ratio of the D^+ and D^0 inclusive e^+ widths is $0.985 \pm 0.028 \pm 0.015$, consistent with the isospin-invariance prediction of 1. NODE=S031R5;LINKAGE=AD

$\Gamma(\mu^+ \text{anything})/\Gamma_{\text{total}}$ Γ_2/Γ NODE=S031R02

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
17.6±2.7±1.8	100 ± 12	[10] ABLIKIM	08L	BES2	$e^+e^- \approx \psi(3772)$

NODE=S031R02

[10] ABLIKIM 08L finds the ratio of $D^+ \to \mu^+ X$ and $D^0 \to \mu^+ X$ branching fractions to be $2.59 \pm 0.70 \pm 0.25$, in accord with the ratio of D^+ and D^0 lifetimes, 2.54 ± 0.02. NODE=S031R02;LINKAGE=AB

$\Gamma(K^- \text{anything})/\Gamma_{\text{total}}$ Γ_3/Γ NODE=S031R1

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

NODE=S031R1

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

NODE=S031R3

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

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

NODE=S031R2

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

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

NODE=S031R41

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

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

NODE=S031C20

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

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

NODE=S031R42

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.203	90	[11] ABLIKIM	06U	BES2	e^+e^- at 3773 MeV

[11] 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.

NODE=S031R42;LINKAGE=AB

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

NODE=S031C21

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

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

NODE=S031R43

This ratio includes η particles from η' decays.

NODE=S031R43

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

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

NODE=S031R44

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

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

NODE=S031B95

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

NODE=S031315

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

NODE=S031R7

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<8.8 × 10^{-6}	90	EISENSTEIN	08	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<2.4 × 10^{-5}	90	ARTUSO	05A	CLEO	See EISENSTEIN 08

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

NODE=S031R8

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

NODE=S031R8

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
3.82± 0.32±0.09	150 ± 12	[12] EISENSTEIN	08	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$12.2\ ^{+11.1}_{-\ 5.3}\ \pm1.0$	3	[13] ABLIKIM	05D	BES	$e^+e^- \approx$ 3.773 GeV
$4.40\pm\ 0.66^{+0.09}_{-0.12}$	47 ± 7	[14] ARTUSO	05A	CLEO	See EISENSTEIN 08
3.5 ± 1.4 ±0.6	7	[15] BONVICINI	04A	CLEO	Incl. in ARTUSO 05A
$8\ ^{+16}_{-\ 5}\ ^{+5}_{-2}$	1	[16] BAI	98B	BES	$e^+e^- \to D^{*+}D^-$

[12] EISENSTEIN 08, using the D^+ lifetime and assuming $|V_{cd}| = |V_{us}|$, gets $f_{D^+} = (205.8 \pm 8.5 \pm 2.5)$ MeV from this measurement. NODE=S031R8;LINKAGE=EI

[13] ABLIKIM 05D finds a background-subtracted 2.67 ± 1.74 $D^+ \to \mu^+\nu_\mu$ events, and from this obtains $f_{D^+} = 371^{+129}_{-119} \pm 25$ MeV. NODE=S031R8;LINKAGE=AB

[14] ARTUSO 05A obtains $f_{D^+} = 222.6 \pm 16.7^{+2.8}_{-3.4}$ MeV from this measurement. NODE=S031R8;LINKAGE=AR

[15] BONVICINI 04A finds eight events with an estimated background of one, and from the branching fraction obtains $f_{D^+} = 202 \pm 41 \pm 17$ MeV. NODE=S031R8;LINKAGE=BO

[16] BAI 98B obtains $f_{D^+} = (300^{+180}_{-150}{}^{+80}_{-40})$ MeV from this measurement. NODE=S031R8;LINKAGE=C

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

NODE=S031R40

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.2 x 10^{-3}	90	EISENSTEIN	08	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<2.1 \times 10^{-3}$	90	RUBIN	06A	CLEO	See EISENSTEIN 08

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

NODE=S031R93

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
8.50±0.26 OUR FIT					
8.54±0.26 OUR AVERAGE					
8.53±0.13±0.23		[17] DOBBS	08	CLEO	e^+e^- at $\psi(3770)$
8.95±1.59±0.67	34 ± 6	[18] ABLIKIM	05A	BES	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
8.71±0.38±0.37	545 ± 24	HUANG	05B	CLEO	See DOBBS 08

[17] DOBBS 08 finds $\Gamma(D^0 \to K^- e^+\nu_e)$ / $\Gamma(D^+ \to \overline{K}^0 e^+\nu_e) = 1.06 \pm 0.02 \pm 0.03$; isospin invariance predicts the ratio is 1.0. NODE=S031R93;LINKAGE=DO

[18] The ABLIKIM 05A result together with the $D^0 \to K^- e^+\nu_e$ branching fraction of ABLIKIM 04C and Particle Data Group lifetimes gives $\Gamma(D^0 \to K^- e^+\nu_e)$ / $\Gamma(D^+ \to \overline{K}^0 e^+\nu_e) = 1.08 \pm 0.22 \pm 0.07$; isospin invariance predicts the ratio is 1.0. NODE=S031R93;LINKAGE=AB

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

NODE=S031B55

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
5.81±0.24 OUR FIT Error includes scale factor of 1.1.					
5.20±0.70±0.52	186	[19] BEAN	93C	CLEO	$e^+e^- \approx \Upsilon(4S)$

[19] BEAN 93C uses $\overline{K}^0\mu^+\nu_\mu$ as well as $\overline{K}^0 e^+\nu_e$ 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. NODE=S031B55;LINKAGE=A

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

NODE=S031R94

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.094±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}

NODE=S031S04

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, $\overline{E}_\gamma \approx$ 180 GeV

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

NODE=S031R68

VALUE	EVTS	DOCUMENT ID		COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.76±0.06	84	[20] AOKI	88	π^- emulsion

[20] From topological branching ratios in emulsion with an identified muon. NODE=S031R68;LINKAGE=A

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

NODE=S031R45

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	$e^+e^- \approx$ 3.77 GeV

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

NODE=S031C15

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

NODE=S031C15

NODE=S031C15

VALUE (units 10^{-2})	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
5.51±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	[21] HUANG	05B	CLEO	$e^+ e^-$ at $\psi(3770)$

[21] 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.

NODE=S031C15;LINKAGE=HU

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

NODE=S031R87

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

NODE=S031R87

NODE=S031R87

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.36±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}

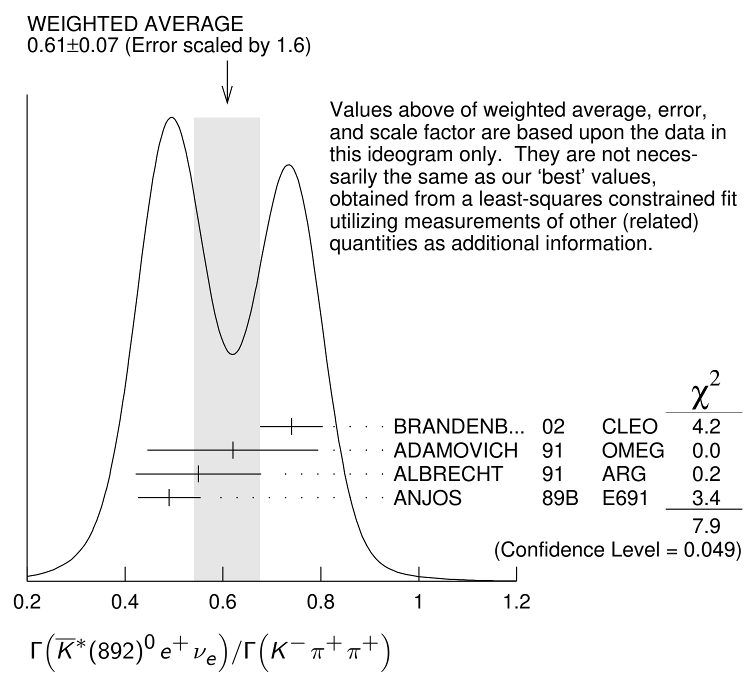
NODE=S031R58

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

NODE=S031R58

NODE=S031R58

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.59±0.04 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



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

NODE=S031R59
NODE=S031R59

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

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

NODE=S031S02
NODE=S031S02

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

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

NODE=S031S03

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

NODE=S031S03

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

NODE=S031S03

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

NODE=S031B51

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

NODE=S031B51

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±0.010±0.021	12k	[22] LINK	02J	FOCS	γ nucleus, $\approx$ 180 GeV

NODE=S031B51

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

NODE=S031B51;LINKAGE=BQ

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

NODE=S031B52
NODE=S031B52

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0530±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

NODE=S031C16
NODE=S031C16

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.373±0.022±0.013		[23] DOBBS	08	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.44 ±0.06 ±0.03	63 ± 9	HUANG	05B	CLEO	See DOBBS 08

[23] DOBBS 08 finds $\Gamma(D^0 \to \pi^- e^+ \nu_e)$ / $\Gamma(D^+ \to \pi^0 e^+ \nu_e) = 2.03 \pm 0.14 \pm 0.08$; isospin invariance predicts the ratio is 2.0.

NODE=S031C16;LINKAGE=DO

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

NODE=S031B48
NODE=S031B48

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.046±0.014±0.017	100	[24] BARTELT	97	CLEO	$e^+e^- \approx \Upsilon(4S)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.085±0.027±0.014	53	[25] ALAM	93	CLEO	See BARTELT 97

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

NODE=S031B48;LINKAGE=B

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

NODE=S031B48;LINKAGE=A

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

NODE=S031R95
NODE=S031R95

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.0022±0.0004 OUR FIT					
0.0021±0.0004±0.0001	27 ± 6	[26] HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031R95;LINKAGE=HU

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

NODE=S031B77
NODE=S031B77

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.039±0.007 OUR FIT					
0.045±0.014±0.009	49	[27] AITALA	97	E791	π^- nucleus, 500 GeV

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

NODE=S031B77;LINKAGE=BK

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

NODE=S031B50

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.045±0.007 OUR AVERAGE	Error includes scale factor of 1.1.				
0.041±0.006±0.004	320 ± 44	LINK	06B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.051±0.015±0.009	54	[28] AITALA	97	E791	π^- nucleus, 500 GeV
0.079±0.019±0.013	39	[29] FRABETTI	97	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV

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

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

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

NODE=S031C14

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$\mathbf{0.0016^{+0.0007}_{-0.0006}\pm0.0001}$	$7.6^{+3.3}_{-2.7}$	HUANG	05B	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031R96

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

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

NODE=S031R97

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}

NODE=S031B83

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}

NODE=S031B49

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

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

NODE=S031B15

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

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

NODE=S031B16

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}

NODE=S031B53

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}

NODE=S031B90

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}

NODE=S031B91

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}

NODE=S031C18

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

NODE=S031C18
NODE=S031C18

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}

NODE=S031B92
NODE=S031B92

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}

NODE=S031C19

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

NODE=S031C19
NODE=S031C19

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 $\overline{K}K\overline{K}$

NODE=S031320

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

NODE=S031S12
NODE=S031S12

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.46 ±0.04 OUR FIT	Error includes scale factor of 1.3.				
1.526±0.022±0.038		[30] 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	[30] HE	05	CLEO	See DOBBS 07
1.6 ±0.3 ±0.1	161	ADLER	88C	MRK3	e^+e^- 3.77 GeV

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

NODE=S031S12;LINKAGE=HE

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

NODE=S031R27
NODE=S031R27

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.158 ±0.005 OUR FIT	Error includes scale factor of 2.3.				
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	[31] BISHAI	97	CLEO	$e^+e^- \approx \Upsilon(4S)$
0.137 ±0.015 ±0.016	264	ANJOS	90C	E691	Photoproduction

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

NODE=S031R27;LINKAGE=Q7

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

NODE=S031R01
NODE=S031R01

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.460±0.040±0.035	2023 ± 54	[32] HE	08	CLEO	e^+e^- at $\psi(3770)$

[32] 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 $+0.022 \pm 0.016 \pm 0.018$.

NODE=S031R01;LINKAGE=HE

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

NODE=S031R19
NODE=S031R19

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
9.29±0.25 OUR FIT	Error includes scale factor of 1.4.				
9.14±0.10±0.17		[33] 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	[33] HE	05	CLEO	See DOBBS 07
9.3 ±0.6 ±0.8	1502	[34] BALEST	94	CLEO	$e^+e^- \approx \Upsilon(4S)$
6.4 $^{+1.5}_{-1.4}$		[35] 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	[36] SCHINDLER	81	MRK2	e^+e^- 3.771 GeV

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

NODE=S031R19;LINKAGE=HE

[34] BALEST 94 measures the ratio of $D^+ \to K^-\pi^+\pi^+$ and $D^0 \to K^-\pi^+$ branching fractions to be $2.35 \pm 0.16 \pm 0.16$ and uses their absolute measurement of the $D^0 \to K^-\pi^+$ fraction (AKERIB 93).

NODE=S031R19;LINKAGE=B

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

NODE=S031R19;LINKAGE=K

[36] 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.

NODE=S031R19;LINKAGE=SP

A REVIEW GOES HERE – Check our WWW List of Reviews

NODE=S031DPF

A REVIEW GOES HERE – Check our WWW List of Reviews NODE=S031DAL

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

NODE=S031R49

This is the "fit fraction" from the Dalitz-plot analysis. The $K^-\pi^+$ S-wave includes a broad scalar κ ($\overline{K}^*_0(800)$), the $\overline{K}^*_0(1430)^0$, and non-resonant background. NODE=S031R49

VALUE	DOCUMENT ID	TECN	COMMENT
0.818 ±0.021 OUR AVERAGE Error includes scale factor of 1.7.			
0.8323±0.0150±0.0008	[37] LINK 07B	FOCS	K-matrix fit, 50.5k±248 evts
0.786 ±0.014 ±0.018	AITALA 06	E791	Dalitz fit, 15.1k events

NODE=S031R49

[37] 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 $\overline{K}^*_0(1430)^0$. NODE=S031R49;LINKAGE=LI

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

NODE=S031C7

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

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

NODE=S031C7

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

NODE=S031B57

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

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

NODE=S031B57

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

NODE=S031R88

This is the "fit fraction" from the Dalitz-plot analysis. NODE=S031R88

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

NODE=S031R88

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

NODE=S031B01

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

NODE=S031B01

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

NODE=S031C8

This is the "fit fraction" from the Dalitz-plot analysis. NODE=S031C8

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

NODE=S031C8

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

NODE=S031B58

This is the "fit fraction" from the Dalitz-plot analysis. NODE=S031B58

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

NODE=S031B58

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

NODE=S031S36

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. • • •				
$0.130\pm0.058\pm0.044$	AITALA	02	E791	See AITALA 06
$0.998\pm0.037\pm0.072$	FRABETTI	94G	E687	γ Be, $\overline{E}_\gamma \approx 220$ GeV
$0.838\pm0.088\pm0.275$	ANJOS	93	E691	γ Be 90–260 GeV
$0.79\pm0.07\pm0.15$	ADLER	87	MRK3	e^+e^- 3.77 GeV

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

NODE=S031R20

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.8 ±0.4 OUR FIT Error includes scale factor of 1.6.					
$6.99\pm0.09\pm0.25$		[38] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$7.2\pm0.2\pm0.4$	5090 ± 100	[38] HE	05	CLEO	See DOBBS 07
$5.1\pm1.3\pm0.8$	159	ADLER	88C	MRK3	e^+e^- 3.77 GeV

[38] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05. NODE=S031R20;LINKAGE=HE

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

NODE=S031S15

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.68\pm0.08\pm0.12$	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}

NODE=S031S16

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.19\pm0.06\pm0.06$	ADLER	87	MRK3	e^+e^- 3.77 GeV

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

NODE=S031S35

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.13\pm0.07\pm0.08$	ADLER	87	MRK3	e^+e^- 3.77 GeV

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

NODE=S031R23

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
6.04±0.22 OUR FIT Error includes scale factor of 1.3.					
$5.98\pm0.08\pm0.16$		[39] DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$6.0\pm0.2\pm0.2$	4840 ± 100	[39] HE	05	CLEO	See DOBBS 07
$5.8\pm1.2\pm1.2$	142	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV
$6.3\,^{+1.4}_{-1.3}\pm1.2$	175	BALTRUSAIT...	86E	MRK3	See COFFMAN 92B

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

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

NODE=S031R34

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.76\pm0.11\pm0.12$	91	ANJOS	92C	E691	γ Be 90–260 GeV
$0.69\pm0.10\pm0.16$		ANJOS	89E	E691	See ANJOS 92C

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

NODE=S031B46

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

VALUE	DOCUMENT ID		TECN	COMMENT
$0.33\pm0.165\pm0.12$	[40] ANJOS	92C	E691	γ Be 90–260 GeV

[40] See, however, the next entry, where the two experiments disagree completely. NODE=S031B46;LINKAGE=A

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

NODE=S031B20

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.				
$0.15\pm0.075\pm0.045$	ANJOS	92C	E691	γ Be 90–260 GeV
$0.833\pm0.116\pm0.165$	COFFMAN	92B	MRK3	e^+e^- 3.77 GeV

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

NODE=S031B24

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

NODE=S031B24
NODE=S031B24

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.001	90	ANJOS	92C	E691	γ Be 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

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

NODE=S031B43

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

NODE=S031B43
NODE=S031B43

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

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

NODE=S031B25

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

NODE=S031B25
NODE=S031B25

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}

NODE=S031B21

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

NODE=S031B21
NODE=S031B21

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}

NODE=S031B44

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

NODE=S031B44
NODE=S031B44

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

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

NODE=S031B22
NODE=S031B22

VALUE	DOCUMENT ID		TECN	COMMENT
0.17 ±0.06 OUR AVERAGE				
0.18 ±0.08 ±0.04	ANJOS	92C	E691	γ Be 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}

NODE=S031B45

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.

NODE=S031B45

NODE=S031B45

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

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

NODE=S031B30

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

NODE=S031B30
NODE=S031B30

VALUE	CL%	DOCUMENT ID		TECN	COMMENT

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

<0.008	90	[41] COFFMAN	92B	MRK3	$e^+ e^-$ 3.77 GeV

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

NODE=S031B30;LINKAGE=A

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

NODE=S031B41

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

NODE=S031B41
NODE=S031B41

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

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

NODE=S031B42

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

NODE=S031B42
NODE=S031B42

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

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

NODE=S031B40
NODE=S031B40

VALUE	CL%	DOCUMENT ID		TECN	COMMENT

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

<0.002	90	[42] ANJOS	92C	E691	γ Be 90–260 GeV

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

NODE=S031B40;LINKAGE=A

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

NODE=S031B23

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

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

NODE=S031R22

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.04 ±0.11 OUR FIT Error includes scale factor of 1.2.					
3.122±0.046±0.096		[43] 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	[43] HE	05	CLEO	See DOBBS 07
2.1 $^{+1.0}_{-0.9}$		[44] BARLAG	92C	ACCM	π^- Cu 230 GeV
3.3 ±0.8 ±0.2	168	ADLER	88C	MRK3	e^+e^- 3.77 GeV

[43] DOBBS 07 and HE 05 use single- and double-tagged events in an overall fit. DOBBS 07 supersedes HE 05. NODE=S031R22;LINKAGE=HE

[44] BARLAG 92C computes the branching fraction by topological normalization. NODE=S031R22;LINKAGE=K

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

NODE=S031B34

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	γ Be 90–260 GeV

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

NODE=S031B17

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 $(\pi\pi)_{I=1}\,\pi$]. NODE=S031B17

NODE=S031B17

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	γ Be 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

NODE=S031B26

Unseen decay modes of the $a_2(1320)^+$ are included. NODE=S031B26

NODE=S031B26

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.0015	90	ANJOS	92C	E691	γ Be 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

NODE=S031B27

Unseen decay modes of the $\overline{K}_1(1270)^0$ are included. NODE=S031B27

NODE=S031B27

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.007	90	ANJOS	92C	E691	γ Be 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

NODE=S031B38

Unseen decay modes of the $\overline{K}_1(1400)^0$ are included. NODE=S031B38

NODE=S031B38

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.009	90	[45] ANJOS	92C	E691	γ Be 90–260 GeV

[45] 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. NODE=S031B38;LINKAGE=A

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

NODE=S031B18

Unseen decay modes of the $\overline{K}_1(1400)^0$ are included. NODE=S031B18

NODE=S031B18

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

NODE=S031B28

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}

NODE=S031B62

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

NODE=S031B29

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}

NODE=S031B36

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

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

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

NODE=S031B37

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	γ Be 90–260 GeV

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

NODE=S031B31

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}

NODE=S031B35

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

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

NODE=S031B39

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

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

NODE=S031B19

VALUE	DOCUMENT ID		TECN	COMMENT
0.12±0.06 OUR AVERAGE				
0.10±0.04 ±0.06	ANJOS	92C	E691	γ Be 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}

NODE=S031R83

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.061±0.005 OUR FIT Error includes scale factor of 1.1.					
0.062±0.008 OUR AVERAGE Error includes scale factor of 1.3.					
0.058±0.002±0.006	2923	LINK	03D	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.077±0.008±0.010	239	FRABETTI	97C	E687	γ Be, $\overline{E}_\gamma \approx$ 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}

NODE=S031R84

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

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

NODE=S031C12

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

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

NODE=S031B75

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

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

NODE=S031B73

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.032\pm0.010\pm0.008$	FRABETTI	97C	E687	γBe, $\overline{E}_\gamma \approx$ 200 GeV

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

NODE=S031B74

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
$0.034\pm0.009\pm0.005$	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}

NODE=S031C11

VALUE	DOCUMENT ID		TECN	COMMENT
$0.30\pm0.04\pm0.01$	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}

NODE=S031C13

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

NODE=S031C13

VALUE	DOCUMENT ID		TECN	COMMENT
$0.099\pm0.008\pm0.018$	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}

NODE=S031B76

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
$0.07\pm0.05\pm0.01$		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}

NODE=S031R92

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.049 ± 0.022 OUR AVERAGE Error includes scale factor of 2.4.					
$0.035\pm0.010\pm0.005$	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}

NODE=S031C4

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
$7.7\pm1.5\pm0.9$	35 ± 7	LINK	01C	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

Pionic modes

NODE=S031325

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

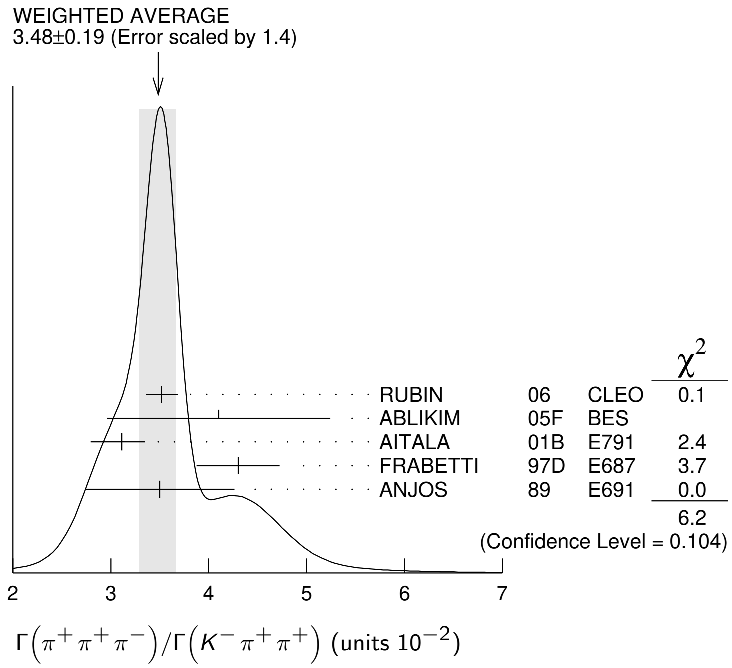
NODE=S031B56

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
1.34 ± 0.07 OUR AVERAGE					
$1.33\pm0.11\pm0.09$	1229 ± 99	AUBERT,B	06F	BABR	$e^+e^-\approx\Upsilon(4S)$
$1.33\pm0.07\pm0.06$	914 ± 46	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
$1.44\pm0.19\pm0.10$	171 ± 22	ARMS	04	CLEO	$e^+e^-\approx$ 10 GeV

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

NODE=S031R30

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.48 ± 0.19 OUR AVERAGE Error includes scale factor of 1.4. See the ideogram below.					
$3.52\pm0.11\pm0.12$	3303 ± 95	RUBIN	06	CLEO	e^+e^- at $\psi(3770)$
$4.1\pm1.1\pm0.3$	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
$4.3\pm0.3\pm0.3$	236	FRABETTI	97D	E687	γ Be $\approx$ 200 GeV
$3.5\pm0.7\pm0.3$	83	ANJOS	89	E691	Photoproduction



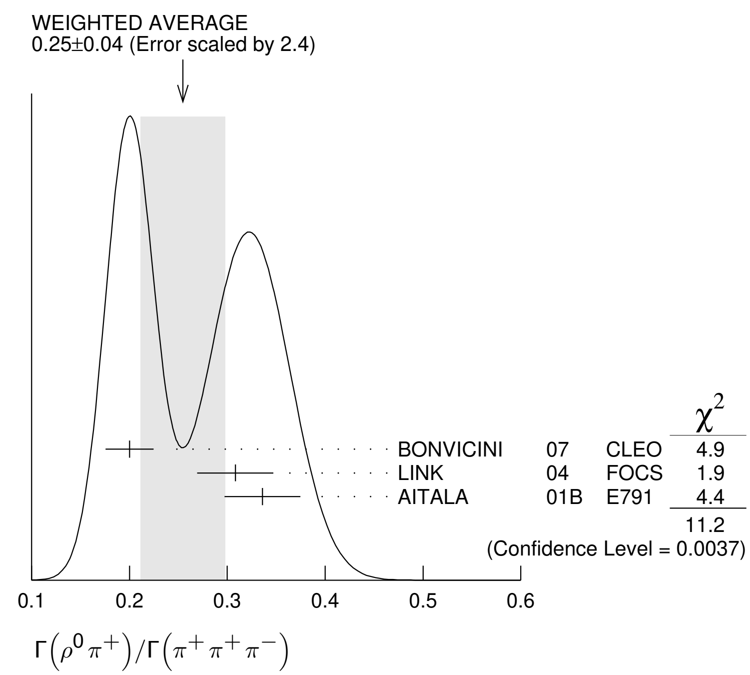
$\Gamma(\rho^0\pi^+)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{100}/Γ_{99}

NODE=S031B81

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

NODE=S031B81
NODE=S031B81

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}

NODE=S031S17

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

NODE=S031S17

VALUE	DOCUMENT ID		TECN	COMMENT
0.5600±0.0324±0.0214	[46] LINK	04	FOCS	Dalitz fit, 1527 ± 51 evts

NODE=S031S17

[46] 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.

NODE=S031S17;LINKAGE=LI

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

NODE=S031B97

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

NODE=S031B97
NODE=S031B97

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

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

NODE=S031B98

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

NODE=S031B98
NODE=S031B98

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

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

NODE=S031C1

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

NODE=S031C1
NODE=S031C1

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

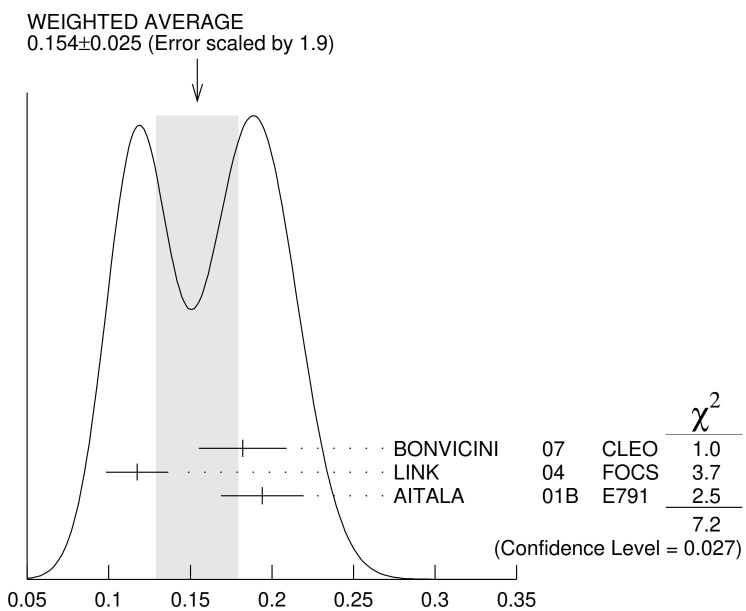
$\Gamma(f_2(1270)\pi^+, f_2(1270) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$ — Γ_{105}/Γ_{99}

NODE=S031B99

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

NODE=S031B99
NODE=S031B99

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



$\Gamma(f_2(1270)\pi^+, f_2(1270) \to \pi^+\pi^-)/\Gamma(\pi^+\pi^+\pi^-)$

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

NODE=S031C2

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

NODE=S031C2
NODE=S031C2

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}

NODE=S031C25

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

NODE=S031C25
NODE=S031C25

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

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

NODE=S031C26

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

NODE=S031C26
NODE=S031C26

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

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

NODE=S031C27

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

NODE=S031C27
NODE=S031C27

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

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

NODE=S031C28

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

NODE=S031C28
NODE=S031C28

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

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

NODE=S031B82

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

NODE=S031B82
NODE=S031B82

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.035	95	BONVICINI	07	CLEO	Dalitz fit, ≈ 2240 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.078\pm0.060\pm0.027$		AITALA	01B	E791	Dalitz fit, 1172 evts

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

NODE=S031C23
NODE=S031C23

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

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

NODE=S031R63
NODE=S031R63

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

$\Gamma(\eta\pi^+)/\Gamma_{\text{total}}$ Γ_{117}/Γ

NODE=S031R03
NODE=S031R03

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN
33.6±1.8 OUR FIT Error includes scale factor of 1.1.				
34.3±1.4±1.7	1033 ± 42	ARTUSO	08	CLEO

$\Gamma(\eta\pi^+)/\Gamma(\phi\pi^+)$ $\Gamma_{117}/\Gamma_{144}$

NODE=S031B84

Unseen decay modes of the η are included.

NODE=S031B84
NODE=S031B84

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.61±0.04 OUR FIT Error includes scale factor of 1.1.					
0.49±0.08	275	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

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

NODE=S031R64

Unseen decay modes of the η are included.

NODE=S031R64
NODE=S031R64

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.62±0.20 OUR FIT Error includes scale factor of 1.1.					
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. • • •					
$8.3\ \pm2.3\ \pm1.4$	99	DAOUDI	92	CLEO	See JESSOP 98

$\Gamma(\omega\pi^+)/\Gamma_{\text{total}}$ Γ_{120}/Γ

NODE=S031C24

Unseen decay modes of the ω are included.

NODE=S031C24
NODE=S031C24

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}

NODE=S031R62
NODE=S031R62

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. • • •					
$2.3\ \pm0.4\ \pm0.2$	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}

NODE=S031C9
NODE=S031C9

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

$\Gamma(\eta\pi^+\pi^0)/\Gamma_{total}$ — Γ_{118}/Γ

NODE=S031R05
NODE=S031R05

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN
13.8±3.1±1.6	149 ± 34	ARTUSO	08	CLEO

$\Gamma(\eta\rho^+)/\Gamma(\phi\pi^+)$ — $\Gamma_{119}/\Gamma_{144}$

NODE=S031B85

Unseen decay modes of the η are included.

NODE=S031B85
NODE=S031B85

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

$\Gamma(\eta'(958)\pi^+)/\Gamma_{total}$ — Γ_{121}/Γ

NODE=S031R04
NODE=S031R04

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN
44.4±3.5 OUR FIT				
44.2±2.5±2.9	352 ± 20	ARTUSO	08	CLEO

$\Gamma(\eta'(958)\pi^+)/\Gamma(\phi\pi^+)$ — $\Gamma_{121}/\Gamma_{144}$

NODE=S031B86

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

NODE=S031B86
NODE=S031B86

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.80±0.07 OUR FIT					
0.82±0.14	126	JESSOP	98	CLEO	$e^+e^- \approx \Upsilon(4S)$

$\Gamma(\eta'(958)\pi^+\pi^0)/\Gamma_{total}$ — Γ_{122}/Γ

NODE=S031R06
NODE=S031R06

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN
15.7±4.3±2.5	33 ± 9	ARTUSO	08	CLEO

$\Gamma(\eta'(958)\rho^+)/\Gamma(\phi\pi^+)$ — $\Gamma_{123}/\Gamma_{144}$

NODE=S031B87

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

NODE=S031B87
NODE=S031B87

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

NODE=S031330

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

NODE=S031R07
NODE=S031R07

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	COMMENT
3.05±0.13 OUR FIT	Error includes scale factor of 1.3.				
3.14±0.09±0.08	1971 ± 51	BONVICINI	08	CLEO	e^+e^- at $\psi(3770)$

$\Gamma(K^+K^0_S)/\Gamma(K^0_S\pi^+)$ — Γ_{124}/Γ_{44}

NODE=S031R26
NODE=S031R26

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.208 ±0.009 OUR FIT	Error includes scale factor of 1.3.				
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	γ Be $\overline{E}_\gamma \approx$ 200 GeV
0.271 ±0.065 ±0.039	69	ANJOS	90C	E691	γ Be
0.317 ±0.086 ±0.048	31	BALTRUSAIT...	85E	MRK3	e^+e^- 3.77 GeV
0.25 ±0.15	6	SCHINDLER	81	MRK2	e^+e^- 3.771 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.1996±0.0119±0.0096	949	[47] LINK	02B	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV
0.222 ±0.041 ±0.019	70	[48] BISHAI	97	CLEO	See ARMS 04

[47] This LINK 02B result is redundant with a result in the next datablock. NODE=S031R26;LINKAGE=LB

[48] This BISHAI 97 result is redundant with results elsewhere in the Listings. NODE=S031R26;LINKAGE=Q7

$\Gamma(K^+K^0_S)/\Gamma(K^-\pi^+\pi^+)$ — Γ_{124}/Γ_{46}

NODE=S031B72
NODE=S031B72

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
3.28±0.15 OUR FIT	Error includes scale factor of 1.4.				
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	[49] BISHAI	97	CLEO	See ARMS 04

[49] See BISHAI 97 for an isospin analysis of $D^+ \to K\overline{K}$ amplitudes. NODE=S031B72;LINKAGE=Q7

$\Gamma(K^+K^-\pi^+)/\Gamma_{\rm total}$ — Γ_{125}/Γ

NODE=S031C22
NODE=S031C22

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	COMMENT
0.972±0.033 OUR FIT Error includes scale factor of 1.5.					
0.935±0.017±0.024		[50] 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	[50] HE	05	CLEO	See DOBBS 07

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

NODE=S031C22;LINKAGE=HE

$\Gamma(K^+K^-\pi^+)/\Gamma(K^-\pi^+\pi^+)$ — Γ_{125}/Γ_{46}

NODE=S031B67
NODE=S031B67

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.1045±0.0020 OUR FIT Error includes scale factor of 1.2.					
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

$\Gamma(\phi\pi^+, \phi\to K^+K^-)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{126}/\Gamma_{125}$

NODE=S031R28

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

NODE=S031R28
NODE=S031R28

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$27.9^{+0.6}_{-0.8}$ OUR FIT Error includes scale factor of 1.3.				
$27.8\pm0.4^{+0.2}_{-0.5}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
29.2±3.1±3.0	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(\phi\pi^+, \phi\to K^+K^-)/\Gamma(\phi\pi^+)$ — $\Gamma_{126}/\Gamma_{144}$

NODE=S031S11
NODE=S031S11

VALUE	DOCUMENT ID	
0.490±0.007 OUR FIT Error includes scale factor of 1.2.		
0.491±0.006	[51] PDG	06

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

NODE=S031S11;LINKAGE=PD

$\Gamma(K^+\overline{K}^*(892)^0, \overline{K}^*(892)^0\to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{127}/\Gamma_{125}$

NODE=S031R29

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

NODE=S031R29
NODE=S031R29

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$25.7\pm0.5^{+0.4}_{-1.2}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
30.1±2.0±2.5	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(K^+\overline{K}_0^*(1430)^0, \overline{K}_0^*(1430)^0\to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{128}/\Gamma_{125}$

NODE=S031S09

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

NODE=S031S09
NODE=S031S09

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$18.8\pm1.2^{+3.3}_{-3.4}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts
• • • We do not use the following data for averages, fits, limits, etc. • • •				
37.0±3.5±1.8	FRABETTI	95B	E687	Dalitz fit, 915 evts

$\Gamma(K^+\overline{K}_2^*(1430)^0, \overline{K}_2^*\to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{129}/\Gamma_{125}$

NODE=S031C29

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

NODE=S031C29
NODE=S031C29

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

$\Gamma(K^+K_0^*(800), K_0^*\to K^-\pi^+)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{130}/\Gamma_{125}$

NODE=S031C30

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

NODE=S031C30
NODE=S031C30

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

$\Gamma(a_0(1450)^0\pi^+, a_0^0\to K^+K^-)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{131}/\Gamma_{125}$

NODE=S031C31

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

NODE=S031C31
NODE=S031C31

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

$\Gamma(\phi(1680)\pi^+,\ \phi \to K^+K^-)/\Gamma(K^+K^-\pi^+)$ — $\Gamma_{132}/\Gamma_{125}$

NODE=S031C32

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

NODE=S031C32
NODE=S031C32

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$0.51 \pm 0.11^{+0.37}_{-0.16}$	RUBIN	08	CLEO	Dalitz fit, 19,458±163 evts

$\Gamma(K^*(892)^+ K^0_S)/\Gamma(K^0_S\pi^+)$ — Γ_{148}/Γ_{44}

NODE=S031B63

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

NODE=S031B63
NODE=S031B63

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

$\Gamma(\phi\pi^+\pi^0)/\Gamma_{total}$ — Γ_{145}/Γ

NODE=S031B4

Unseen decay modes of the ϕ are included.

NODE=S031B4
NODE=S031B4

VALUE	DOCUMENT ID		TECN	COMMENT
0.023±0.010	[52] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

NODE=S031B4;LINKAGE=A

$\Gamma(\phi\rho^+)/\Gamma(K^-\pi^+\pi^+)$ — Γ_{146}/Γ_{46}

NODE=S031R91

Unseen decay modes of the ϕ are included.

NODE=S031R91
NODE=S031R91

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

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

NODE=S031B5
NODE=S031B5

VALUE	DOCUMENT ID		TECN	COMMENT
$0.015^{+0.007}_{-0.006}$	[53] BARLAG	92C	ACCM	π^- Cu 230 GeV

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

NODE=S031B5;LINKAGE=A

$\Gamma(K^+K^-\pi^+\pi^0\ \text{non-}\phi)/\Gamma(K^-\pi^+\pi^+)$ — Γ_{139}/Γ_{46}

NODE=S031R67
NODE=S031R67

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

$\Gamma(K^+K^0_S\pi^+\pi^-)/\Gamma(K^0_S\pi^+\pi^+\pi^-)$ — Γ_{140}/Γ_{67}

NODE=S031C6
NODE=S031C6

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_{141}/Γ_{67}

NODE=S031C5
NODE=S031C5

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

$\Gamma(K^+K^-\pi^+\pi^+\pi^-)/\Gamma(K^-3\pi^+\pi^-)$ — Γ_{143}/Γ_{74}

NODE=S031C10
NODE=S031C10

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

NODE=S031335

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

NODE=S031S01
NODE=S031S01

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_{151}/Γ_{46}

NODE=S031R33
NODE=S031R33

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	γ Be, $\overline{E}_\gamma =$ 220 GeV

$\Gamma(K^+\rho^0)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{152}/\Gamma_{151}$

NODE=S031B78

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

NODE=S031B78
NODE=S031B78

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

$\Gamma(K^+ f_0(980),\, f_0(980) \to \pi^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{154}/\Gamma_{151}$

NODE=S031S05

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

NODE=S031S05
NODE=S031S05

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

$\Gamma(K^*(892)^0\pi^+,\, K^*(892)^0 \to K^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{153}/\Gamma_{151}$

NODE=S031B79

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

NODE=S031B79
NODE=S031B79

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

$\Gamma(K_2^*(1430)^0\pi^+,\, K_2^*(1430)^0 \to K^+\pi^-)/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{155}/\Gamma_{151}$

NODE=S031S06

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

NODE=S031S06
NODE=S031S06

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

$\Gamma(K^+\pi^+\pi^-\ \text{nonresonant})/\Gamma(K^+\pi^+\pi^-)$ — $\Gamma_{156}/\Gamma_{151}$

NODE=S031B80

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

NODE=S031B80
NODE=S031B80

VALUE	DOCUMENT ID		TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •				
0.36±0.14±0.07	[54] AITALA	97C	E791	Dalitz fit, 59 evts

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

NODE=S031B80;LINKAGE=AI

$\Gamma(K^+K^+K^-)/\Gamma(K^-\pi^+\pi^+)$ — Γ_{157}/Γ_{46}

NODE=S031B47
NODE=S031B47

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	COMMENT
9.49±2.17±0.22	65	[55] LINK	02I	FOCS	γ nucleus, $\approx$ 180 GeV

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

NODE=S031B47;LINKAGE=B

Rare or forbidden modes

NODE=S031340

$\Gamma(\pi^+ e^+ e^-)/\Gamma_{\text{total}}$ — Γ_{158}/Γ

NODE=S031R53

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

NODE=S031R53
NODE=S031R53

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

$\Gamma(\pi^+\phi,\, \phi \to e^+e^-)/\Gamma_{\text{total}}$ — Γ_{159}/Γ

NODE=S031C17

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

NODE=S031C17
NODE=S031C17

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$(2.7^{+3.6}_{-1.8} \pm 0.2) \times 10^{-6}$	2	[56] HE	05A	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031C17;LINKAGE=HE

$\Gamma(\pi^+\mu^+\mu^-)/\Gamma_{\text{total}}$ — Γ_{160}/Γ

NODE=S031R54

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

NODE=S031R54
NODE=S031R54

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
$<3.9 \times 10^{-6}$	90		[57] ABAZOV	08D	D0	$p\overline{p}$, $E_{\text{cm}} = 1.96$ TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
$<8.8 \times 10^{-6}$	90		LINK	03F	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV
$<1.5 \times 10^{-5}$	90		AITALA	99G	E791	$\pi^- N$ 500 GeV
$<8.9 \times 10^{-5}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<1.8 \times 10^{-5}$	90		AITALA	96	E791	$\pi^- N$ 500 GeV
$<2.2 \times 10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
$<5.9 \times 10^{-3}$	90		WEIR	90B	MRK2	e^+e^- 29 GeV
$<2.9 \times 10^{-3}$	90	36	HAAS	88	CLEO	e^+e^- 10 GeV

[57] 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.

NODE=S031R54;LINKAGE=AB

$\Gamma(\rho^+ \mu^+ \mu^-)/\Gamma_{total}$ Γ_{161}/Γ

NODE=S031B64

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

NODE=S031B64

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

NODE=S031B64

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

NODE=S031R73

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

NODE=S031R73

NODE=S031R73

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<6.2 × 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	$\pi^- N$ 500 GeV
$<2.0 \times 10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<4.8 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

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

NODE=S031R74

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

NODE=S031R74

NODE=S031R74

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<9.2 × 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	$\pi^- N$ 500 GeV
$<9.7 \times 10^{-5}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.2 \times 10^{-4}$	90	KODAMA	95	E653	π^- emulsion 600 GeV
$<9.2 \times 10^{-3}$	90	WEIR	90B	MRK2	$e^+ e^-$ 29 GeV

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

NODE=S031B88

A test of lepton-family-number conservation.

NODE=S031B88

NODE=S031B88

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

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

NODE=S031R71

A test of lepton-family-number conservation.

NODE=S031R71

NODE=S031R71

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_{166}/Γ

NODE=S031R72

A test of lepton-family-number conservation.

NODE=S031R72

NODE=S031R72

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_{167}/Γ

NODE=S031B89

A test of lepton-family-number conservation.

NODE=S031B89

NODE=S031B89

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

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

NODE=S031R75

A test of lepton-family-number conservation.

NODE=S031R75

NODE=S031R75

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_{169}/Γ

NODE=S031R76

A test of lepton-family-number conservation.

NODE=S031R76

NODE=S031R76

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_{170}/Γ

NODE=S031R77

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<3.6 × 10^{-6}	90	HE	05A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<9.6\times10^{-5}$	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
$<1.1\times10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<4.8\times10^{-3}$	90	WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(\pi^- \mu^+ \mu^+)/\Gamma_{total}$ — Γ_{171}/Γ

NODE=S031R78

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<4.8 × 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. • • •						
$<1.7\times10^{-5}$	90		AITALA	99G	E791	$\pi^- N$ 500 GeV
$<8.7\times10^{-5}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<2.2\times10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
$<6.8\times10^{-3}$	90		WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(\pi^- e^+ \mu^+)/\Gamma_{total}$ — Γ_{172}/Γ

NODE=S031R79

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<5.0 × 10^{-5}	90	AITALA	99G	E791	$\pi^- N$ 500 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.1\times10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.7\times10^{-3}$	90	WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(\rho^- \mu^+ \mu^+)/\Gamma_{total}$ — Γ_{173}/Γ

NODE=S031B65

A test of lepton-number conservation.

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

$\Gamma(K^- e^+ e^+)/\Gamma_{total}$ — Γ_{174}/Γ

NODE=S031R80

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<4.5 × 10^{-6}	90	HE	05A	CLEO	e^+e^- at $\psi(3770)$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$<1.2\times10^{-4}$	90	FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<9.1\times10^{-3}$	90	WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(K^- \mu^+ \mu^+)/\Gamma_{total}$ — Γ_{175}/Γ

NODE=S031R81

A test of lepton-number conservation.

VALUE	CL%	EVTS	DOCUMENT ID		TECN	COMMENT
<1.3 × 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. • • •						
$<1.2\times10^{-4}$	90		FRABETTI	97B	E687	γ Be, $\overline{E}_\gamma \approx$ 220 GeV
$<3.2\times10^{-4}$	90	0	KODAMA	95	E653	π^- emulsion 600 GeV
$<4.3\times10^{-3}$	90		WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(K^- e^+ \mu^+)/\Gamma_{total}$ — Γ_{176}/Γ

NODE=S031R82

A test of lepton-number conservation.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<1.3 × 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. • • •					
$<4.0\times10^{-3}$	90	WEIR	90B	MRK2	e^+e^- 29 GeV

$\Gamma(K^*(892)^- \mu^+ \mu^+)/\Gamma_{total}$ — Γ_{177}/Γ

NODE=S031B66

A test of lepton-number conservation.

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

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

NODE=S031230

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

NODE=S031230

$A_{CP}(\mu^{\pm}\nu)$ in $D^+ \to \mu^+\nu_\mu$, $D^- \to \mu^-\overline{\nu}_\mu$

NODE=S031A05
NODE=S031A05

VALUE	DOCUMENT ID		TECN	COMMENT
+0.08±0.08	EISENSTEIN	08	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031A5
NODE=S031A5

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
−0.009±0.009 OUR AVERAGE					
−0.006±0.010±0.003		DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
−0.016±0.015±0.009	10.6k	[58] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

[58] LINK 02B measures $N(D^+ \to K^0_S\pi^+)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A5;LINKAGE=A1

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

NODE=S031A01
NODE=S031A01

VALUE	DOCUMENT ID		TECN	COMMENT
−0.005±0.004±0.009	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031A02
NODE=S031A02

VALUE	DOCUMENT ID		TECN	COMMENT
+0.010±0.009±0.009	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031A03
NODE=S031A03

VALUE	DOCUMENT ID		TECN	COMMENT
+0.003±0.009±0.003	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031A04
NODE=S031A04

VALUE	DOCUMENT ID		TECN	COMMENT
+0.001±0.011±0.006	DOBBS	07	CLEO	e^+e^- at $\psi(3770)$

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

NODE=S031A6
NODE=S031A6

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
+0.071±0.061±0.012	949	[59] 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±0.060±0.015	949	[60] LINK	02B	FOCS	γ nucleus, $\overline{E}_\gamma \approx$ 180 GeV

OCCUR=2

[59] LINK 02B measures $N(D^+ \to K^0_S K^+)/N(D^+ \to K^0_S\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A6;LINKAGE=A2

[60] LINK 02B measures $N(D^+ \to K^0_S K^+)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A6;LINKAGE=A3

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

NODE=S031A1
NODE=S031A1

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.3 ±0.6 OUR AVERAGE					
−0.03±0.84±0.29		RUBIN	08	CLEO	e^+e^-, 3774 MeV
−0.1 ±1.5 ±0.8		DOBBS	07	CLEO	e^+e^- at $\psi(3770)$
+1.4 ±1.0 ±0.8	43k±321	[61] AUBERT	05S	BABR	$e^+e^- \approx \Upsilon(4S)$
+0.6 ±1.1 ±0.5	14k	[62] LINK	00B	FOCS	
−1.4 ±2.9		[62] AITALA	97B	E791	$-0.062 < A_{CP} < +0.034$ (90% CL)
−3.1 ±6.8		[62] FRABETTI	94I	E687	$-0.14 < A_{CP} < +0.081$ (90% CL)

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

NODE=S031A1;LINKAGE=AU

[62] FRABETTI 94I, AITALA 98C, and LINK 00B measure $N(D^+ \to K^-K^+\pi^+)/N(D^+ \to K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-.

NODE=S031A1;LINKAGE=A

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

NODE=S031A2

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
0.1± 1.3 OUR AVERAGE					
$-$ 0.4± 2.0±0.6		RUBIN	08	CLEO	Fit-fraction asymmetry
$+$ 0.9± 1.7±0.7	11k±122	[63] AUBERT	05S	BABR	$e^+ e^- \approx \Upsilon(4S)$
$-$ 1.0± 5.0		[64] AITALA	97B	E791	$-0.092 < A_{CP} < +0.072$ (90% CL)
-12 ±13		[64] FRABETTI	94I	E687	$-0.33 < A_{CP} < +0.094$ (90% CL)

[63] AUBERT 05S measures $N(D^+ \rightarrow K^+ \overline{K}^{*0})/N(D_s^+ \rightarrow K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-. NODE=S031A2;LINKAGE=AU

[64] FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow K^+ \overline{K}^*(892)^0)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A2;LINKAGE=A

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

NODE=S031A3

VALUE (%)	EVTS	DOCUMENT ID		TECN	COMMENT
$-$0.9±1.1 OUR AVERAGE					
$-1.8\pm1.6^{+0.2}_{-0.4}$		RUBIN	08	CLEO	Fit-fraction asymmetry
$+0.2\pm1.5\pm0.6$	10k±136	[65] AUBERT	05S	BABR	$e^+ e^- \approx \Upsilon(4S)$
-2.8 ± 3.6		[66] AITALA	97B	E791	$-0.087 < A_{CP} < +0.031$ (90% CL)
$+6.6\pm8.6$		[66] FRABETTI	94I	E687	$-0.075 < A_{CP} < +0.21$ (90% CL)

[65] AUBERT 05S measures $N(D^+ \rightarrow \phi\pi^+)/N(D_s^+ \rightarrow K^+ K^- \pi^+)$, the ratio of the numbers of events observed, and similarly for the D^-. NODE=S031A3;LINKAGE=AU

[66] FRABETTI 94I and AITALA 97B measure $N(D^+ \rightarrow \phi\pi^+)/N(D^+ \rightarrow K^- \pi^+ \pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A3;LINKAGE=A

$A_{CP}(K^{\pm} K_0^*(1430)^0)$ in $D^+ \rightarrow K^+ \overline{K}_0^*(1430)^0$, $D^- \rightarrow K^- K_0^*(1430)^0$

NODE=S031A06

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$\mathbf{+8\pm6^{+4}_{-2}}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(K^{\pm} K_2^*(1430)^0)$ in $D^+ \rightarrow K^+ \overline{K}_2^*(1430)^0$, $D^- \rightarrow K^- K_2^*(1430)^0$

NODE=S031A07

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$\mathbf{+43\pm19^{+5}_{-18}}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(K^{\pm} K_0^*(800))$ in $D^+ \rightarrow K^+ \overline{K}_0^*(800)$, $D^- \rightarrow K^- K_0^*(800)$

NODE=S031A08

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$\mathbf{-12\pm11^{+14}_{-6}}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(a_0(1450)^0\pi^{\pm})$ in $D^{\pm} \rightarrow a_0(1450)^0\pi^{\pm}$

NODE=S031A09

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$\mathbf{-19\pm12^{+8}_{-11}}$	RUBIN	08	CLEO	Fit-fraction asymmetry

$A_{CP}(\phi(1680)\pi^{\pm})$ in $D^{\pm} \rightarrow \phi(1680)\pi^{\pm}$

NODE=S031A10

VALUE (%)	DOCUMENT ID		TECN	COMMENT
$-$9±22±14	RUBIN	08	CLEO	Fit-fraction asymmetry

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

NODE=S031A4

VALUE	DOCUMENT ID		TECN	COMMENT
$-$0.017±0.042	[67] AITALA	97B	E791	$-0.086 < A_{CP} < +0.052$ (90% CL)

[67] AITALA 97B measure $N(D^+ \rightarrow \pi^+\pi^-\pi^+)/N(D^+ \rightarrow K^-\pi^+\pi^+)$, the ratio of numbers of events observed, and similarly for the D^-. NODE=S031A4;LINKAGE=A

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

NODE=S031CPK

This is the difference between D^+ and D^- partial widths for these modes divided by the sum of the widths. NODE=S031CPK

NODE=S031CPK

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
$-$0.042±0.064±0.022	523 ± 32	LINK	05E	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

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

NODE=S031242

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

NODE=S031TV0

NODE=S031TV0

$C_T \equiv \vec{p}_{K^+} \cdot (\vec{p}_{\pi^+} \times \vec{p}_{\pi^-})$ is a 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.

NODE=S031TV0

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
+0.023±0.062±0.022	523 ± 32	LINK	05E	FOCS	γ A, $\overline{E}_\gamma \approx$ 180 GeV

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

NODE=S031260

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

NODE=S031FRV

NODE=S031FRV

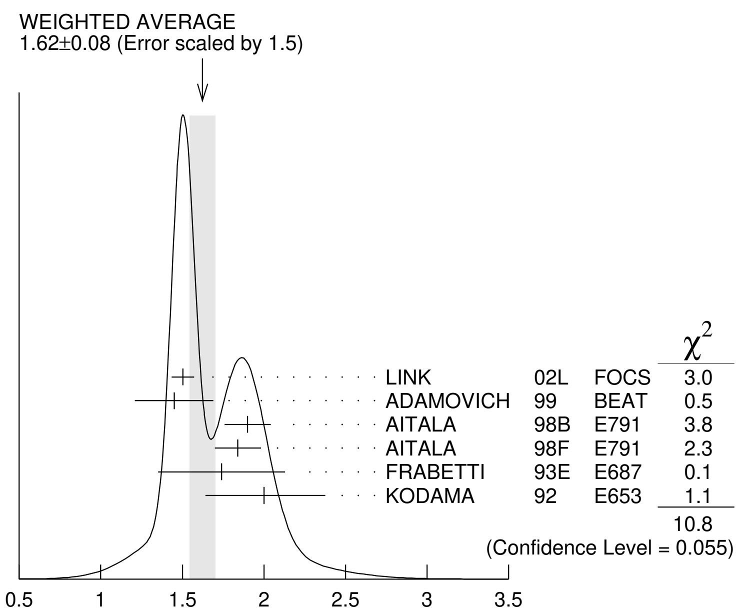
VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
1.62 ±0.08 OUR AVERAGE		Error includes scale factor of 1.5. See the ideogram below.			
1.504±0.057±0.039	15k	[68] LINK	02L	FOCS	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.45 ±0.23 ±0.07	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.90 ±0.11 ±0.09	3000	[69] 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	$\overline{K}^*(892)^0 e^+ \nu_e$

[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.

NODE=S031FRV;LINKAGE=LL

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

NODE=S031FRV;LINKAGE=A



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

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

NODE=S031FR2

NODE=S031FR2

VALUE	EVTS	DOCUMENT ID		TECN	COMMENT
0.83 ±0.05 OUR AVERAGE					
0.875±0.049±0.064	15k	[70] LINK	02L	FOCS	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.00 ±0.15 ±0.03	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.71 ±0.08 ±0.09	3000	AITALA	98B	E791	$\overline{K}^*(892)^0 e^+ \nu_e$
0.75 ±0.08 ±0.09	3034	AITALA	98F	E791	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.78 ±0.18 ±0.10	874	FRABETTI	93E	E687	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.82 $^{+0.22}_{-0.23}$ ±0.11	305	KODAMA	92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$

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

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

[70] LINK 02L includes the effects of interference with an *S*-wave background. This much improves the goodness of fit, but does not much shift the values of the form factors. NODE=S031FR2;LINKAGE=LL

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

NODE=S031FR3

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

NODE=S031FR3

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

NODE=S031GLT

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
1.13±0.08 OUR AVERAGE					
1.09±0.10±0.02	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.20±0.13±0.13	874	FRABETTI	93E	E687	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
1.18±0.18±0.08	305	KODAMA	92	E653	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$1.8 ^{+0.6}_{-0.4} \pm 0.3$	183	ANJOS	90E	E691	$\overline{K}^*(892)^0 e^+ \nu_e$

NODE=S031GLT

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

NODE=S031GPM

VALUE	*EVTS*	*DOCUMENT ID*		*TECN*	*COMMENT*
0.22±0.06 OUR AVERAGE Error includes scale factor of 1.6.					
0.28±0.05±0.02	763	ADAMOVICH	99	BEAT	$\overline{K}^*(892)^0 \mu^+ \nu_\mu$
0.16±0.05±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	$\overline{K}^*(892)^0 e^+ \nu_e$

NODE=S031GPM

$D^\pm$ REFERENCES

NODE=S031

ABAZOV	08D	PRL 100 101801	V.M. Abazov *et al.*	(D0 Collab.)	REFID=52212
ABLIKIM	08L	PL B665 16	M. Ablikim *et al.*	(BES Collab.)	REFID=52461
ARTUSO	08	PR D77 092003	M. Artuso *et al.*	(CLEO Collab.)	REFID=52350
BONVICINI	08	PR D77 091106R	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=52349
DOBBS	08	PR D77 112005	S. Dobbs *et al.*	(CLEO Collab.)	REFID=52407
Also		PRL 100 251802	D. Cronin-Hennessy *et al.*	(CLEO Collab.)	REFID=52443
EISENSTEIN	08	PR D78 052003	B.I. Eisenstein *et al.*	(CLEO Collab.)	REFID=52428
HE	08	PRL 100 091801	Q. He *et al.*	(CLEO Collab.)	REFID=52215
RUBIN	08	PR D78 072003	P. Rubin *et al.*	(CLEO Collab.)	REFID=52534
ABLIKIM	07	PL B644 20	M. Ablikim *et al.*	(BES Collab.)	REFID=51595
ABLIKIM	07G	PL B658 1	M. Ablikim *et al.*	(BES Collab.)	REFID=52031
BONVICINI	07	PR D76 012001	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=51721
DOBBS	07	PR D76 112001	S. Dobbs *et al.*	(CLEO Collab.)	REFID=52075
LINK	07B	PL B653 1	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=51875
ABLIKIM	06O	EPJ C47 31	M. Ablikim *et al.*	(BES Collab.)	REFID=51228
ABLIKIM	06P	EPJ C47 39	M. Ablikim *et al.*	(BES Collab.)	REFID=51229
ABLIKIM	06U	PL B643 246	M. Ablikim *et al.*	(BES Collab.)	REFID=51495
ADAM	06A	PRL 97 251801	N.E. Adam *et al.*	(CLEO Collab.)	REFID=51559
AITALA	06	PR D73 032004	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=51051
Also		PR D74 059901 (errat.)	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=51458
AUBERT,B	06F	PR D74 011107R	B. Aubert *et al.*	(BABAR Colla.b)	REFID=51292
DYTMAN	06	PR D74 071102R	S.A. Dytman *et al.*	(CLEO Collab.)	REFID=51460
HUANG	06B	PR D74 112005	G.S. Huang *et al.*	(CLEO Collab.)	REFID=51590
LINK	06B	PL B637 32	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=51255
PDG	06	JPG 33 1	W.-M. Yao *et al.*	(PDG Collab.)	REFID=51004
RUBIN	06	PRL 96 081802	P. Rubin *et al.*	(CLEO Collab.)	REFID=50981
RUBIN	06A	PR D73 112005	P. Rubin *et al.*	(CLEO Collab.)	REFID=51284
ABLIKIM	05A	PL B608 24	M. Ablikim *et al.*	(BES Collab.)	REFID=50473
ABLIKIM	05D	PL B610 183	M. Ablikim *et al.*	(BES Collab.)	REFID=50598
ABLIKIM	05F	PL B622 6	M. Ablikim *et al.*	(BES Collab.)	REFID=50681
ABLIKIM	05P	PL B625 196	M. Ablikim *et al.*	(BES Collab.)	REFID=50879
ARTUSO	05A	PRL 95 251801	M. Artuso *et al.*	(CLEO Collab.)	REFID=50980
AUBERT	05S	PR D71 091101R	B. Aubert *et al.*	(BABAR Collab.)	REFID=50633
HE	05	PRL 95 121801	Q. He *et al.*	(CLEO Collab.)	REFID=50924
Also		PRL 96 199903 (errat.)	Q. He *et al.*	(CLEO Collab.)	REFID=51211
HE	05A	PRL 95 221802	Q. He *et al.*	(CLEO Collab.)	REFID=50951
HUANG	05B	PRL 95 181801	G.S. Huang *et al.*	(CLEO Collab.)	REFID=50932
KAYIS-TOPAK...	05	PL B626 24	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)	REFID=50880
LINK	05E	PL B622 239	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50567
LINK	05I	PL B621 72	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50679
ABLIKIM	04C	PL B597 39	M. Ablikim *et al.*	(BEPC BES Collab.)	REFID=49985
ARMS	04	PR D69 071102R	K. Arms *et al.*	(CLEO Collab.)	REFID=49962
BONVICINI	04A	PR D70 112004	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=50376
LINK	04	PL B585 200	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49774
LINK	04E	PL B598 33	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50118
LINK	04F	PL B601 10	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=50131
ANISOVICH	03	EPJ A16 229	V.V. Anisovich *et al.*		REFID=49401
LINK	03D	PL B561 225	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49373
LINK	03F	PL B572 21	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=49533
AITALA	02	PRL 89 121801	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=48807
BRANDENB...	02	PRL 89 222001	G. Brandenburg *et al.*	(CLEO Collab.)	REFID=49076
KAYIS-TOPAK...	02	PL B549 48	A. Kayis-Topaksu *et al.*	(CERN CHORUS Collab.)	REFID=49090
LINK	02B	PRL 88 041602	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48607
Also		PRL 88 159903 (erratum)	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48703
LINK	02E	PL B535 43	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48728
LINK	02F	PL B537 192	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48767
LINK	02I	PL B541 227	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48776

LINK	02J	PL B541 243	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48777
LINK	02L	PL B544 89	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48918
AITALA	01B	PRL 86 770	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=48005
LINK	01C	PRL 87 162001	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=48360
ABREU	00O	EPJ C12 209	P. Abreu *et al.*	(DELPHI Collab.)	REFID=47580
ASTIER	00D	PL B486 35	P. Astier *et al.*	(CERN NOMAD Collab.)	REFID=47727
JUN	00	PRL 84 1857	S.Y. Jun *et al.*	(FNAL SELEX Collab.)	REFID=47502
LINK	00B	PL B491 232	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=47794
Also		PL B495 443 (erratum)	J.M. Link *et al.*	(FNAL FOCUS Collab.)	REFID=47918
ABBIENDI	99K	EPJ C8 573	G. Abbiendi *et al.*	(OPAL Collab.)	REFID=46970
ABE	99P	PR D60 092005	F. Abe *et al.*	(CDF Collab.)	REFID=47232
ADAMOVICH	99	EPJ C6 35	M. Adamovich *et al.*	(CERN BEATRICE Collab.)	REFID=46535
AITALA	99G	PL B462 401	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=47185
BONVICINI	99	PRL 82 4586	G. Bonvicini *et al.*	(CLEO Collab.)	REFID=47018
AITALA	98B	PRL 80 1393	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45920
AITALA	98C	PL B421 405	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45931
AITALA	98F	PL B440 435	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=46453
BAI	98B	PL B429 188	J.Z. Bai *et al.*	(BEPC BES Collab.)	REFID=46062
JESSOP	98	PR D58 052002	C.P. Jessop *et al.*	(CLEO Collab.)	REFID=46141
AITALA	97	PL B397 325	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45321
AITALA	97B	PL B403 377	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45452
AITALA	97C	PL B404 187	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=45453
BARTELT	97	PL B405 373	J. Bartelt *et al.*	(CLEO Collab.)	REFID=45550
BISHAI	97	PRL 78 3261	M. Bishai *et al.*	(CLEO Collab.)	REFID=45305
FRABETTI	97	PL B391 235	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45246
FRABETTI	97B	PL B398 239	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45323
FRABETTI	97C	PL B401 131	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45411
FRABETTI	97D	PL B407 79	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=45554
AITALA	96	PRL 76 364	E.M. Aitala *et al.*	(FNAL E791 Collab.)	REFID=44625
FRABETTI	95	PL B346 199	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44134
FRABETTI	95B	PL B351 591	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44284
FRABETTI	95E	PL B359 403	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44476
KODAMA	95	PL B345 85	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=44124
ALBRECHT	94I	ZPHY C64 375	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=44156
ALEEV	94	PAN 57 1370	A.N. Aleev *et al.*	(Serpukhov BIS-2 Collab.)	REFID=44000
		Translated from YF 57 1443.			
BALEST	94	PRL 72 2328	R. Balest *et al.*	(CLEO Collab.)	REFID=43712
FRABETTI	94D	PL B323 459	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43745
FRABETTI	94G	PL B331 217	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43895
FRABETTI	94I	PR D50 R2953	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=44029
AKERIB	93	PRL 71 3070	D.S. Akerib *et al.*	(CLEO Collab.)	REFID=43571
ALAM	93	PRL 71 1311	M.S. Alam *et al.*	(CLEO Collab.)	REFID=43463
ANJOS	93	PR D48 56	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=43332
BEAN	93C	PL B317 647	A. Bean *et al.*	(CLEO Collab.)	REFID=43584
FRABETTI	93E	PL B307 262	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=43354
KODAMA	93B	PL B313 260	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=43469
ALBRECHT	92F	PL B278 202	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41987
ANJOS	92	PR D45 R2177	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41919
ANJOS	92C	PR D46 1941	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=42102
BARLAG	92C	ZPHY C55 383	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=42202
Also		ZPHY C48 29	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=41313
COFFMAN	92B	PR D45 2196	D.M. Coffman *et al.*	(Mark III Collab.)	REFID=41921
DAOUDI	92	PR D45 3965	M. Daoudi *et al.*	(CLEO Collab.)	REFID=41616
KODAMA	92	PL B274 246	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=42047
KODAMA	92C	PL B286 187	K. Kodama *et al.*	(FNAL E653 Collab.)	REFID=42123
ADAMOVICH	91	PL B268 142	M.I. Adamovich *et al.*	(WA82 Collab.)	REFID=41626
ALBRECHT	91	PL B255 634	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=41443
ALVAREZ	91B	ZPHY C50 11	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)	REFID=41498
AMMAR	91	PR D44 3383	R. Ammar *et al.*	(CLEO Collab.)	REFID=41847
BAI	91	PRL 66 1011	Z. Bai *et al.*	(Mark III Collab.)	REFID=41470
COFFMAN	91	PL B263 135	D.M. Coffman *et al.*	(Mark III Collab.)	REFID=41541
FRABETTI	91	PL B263 584	P.L. Frabetti *et al.*	(FNAL E687 Collab.)	REFID=41570
ALVAREZ	90	ZPHY C47 539	M.P. Alvarez *et al.*	(CERN NA14/2 Collab.)	REFID=41311
ANJOS	90C	PR D41 2705	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41250
ANJOS	90D	PR D42 2414	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41309
ANJOS	90E	PRL 65 2630	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=41396
BARLAG	90C	ZPHY C46 563	S. Barlag *et al.*	(ACCMOR Collab.)	REFID=41097
WEIR	90B	PR D41 1384	A.J. Weir *et al.*	(Mark II Collab.)	REFID=41242
ANJOS	89	PRL 62 125	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40625
ANJOS	89B	PRL 62 722	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40630
ANJOS	89E	PL B223 267	J.C. Anjos *et al.*	(FNAL E691 Collab.)	REFID=40770
ADLER	88C	PRL 60 89	J. Adler *et al.*	(Mark III Collab.)	REFID=40361
ALBRECHT	88I	PL B210 267	H. Albrecht *et al.*	(ARGUS Collab.)	REFID=40653
AOKI	88	PL B209 113	S. Aoki *et al.*	(WA75 Collab.)	REFID=40648
HAAS	88	PRL 60 1614	P. Haas *et al.*	(CLEO Collab.)	REFID=40601
ONG	88	PRL 60 2587	R.A. Ong *et al.*	(Mark II Collab.)	REFID=40607
RAAB	88	PR D37 2391	J.R. Raab *et al.*	(FNAL E691 Collab.)	REFID=40355
ADAMOVICH	87	EPL 4 887	M.I. Adamovich *et al.*	(Photon Emulsion Collab.)	REFID=40292
ADLER	87	PL B196 107	J. Adler *et al.*	(Mark III Collab.)	REFID=40357
BARTEL	87	ZPHY C33 339	W. Bartel *et al.*	(JADE Collab.)	REFID=40359
BALTRUSAIT...	86E	PRL 56 2140	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11477
BALTRUSAIT...	85B	PRL 54 1976	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11471
BALTRUSAIT...	85E	PRL 55 150	R.M. Baltrusaitis *et al.*	(Mark III Collab.)	REFID=11472
BARTEL	85J	PL 163B 277	W. Bartel *et al.*	(JADE Collab.)	REFID=11473
ADAMOVICH	84	PL 140B 119	M.I. Adamovich *et al.*	(CERN WA58 Collab.)	REFID=11462
ALTHOFF	84G	ZPHY C22 219	M. Althoff *et al.*	(TASSO Collab.)	REFID=11464
DERRICK	84	PRL 53 1971	M. Derrick *et al.*	(HRS Collab.)	REFID=11467
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