

CHARMED MESONS

(C = ±1)

$D^+ = c\bar{d}$, $D^0 = c\bar{u}$, $\bar{D}^0 = \bar{c}u$, $D^- = \bar{c}d$, similarly for D^{*} 's

D^\pm

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

Mass $m = 1869.66 \pm 0.05$ MeV

Mean life $\tau = (1033 \pm 5) \times 10^{-15}$ s

$c\tau = 309.8$ μm

c-quark decays

$$\Gamma(c \rightarrow \ell^+ \text{ anything}) / \Gamma(c \rightarrow \text{ anything}) = 0.096 \pm 0.004 \text{ [a]}$$

$$\Gamma(c \rightarrow D^*(2010)^+ \text{ anything}) / \Gamma(c \rightarrow \text{ anything}) = 0.255 \pm 0.017$$

CP-violation decay-rate asymmetries

$$A_{CP}(\mu^\pm \nu) = (8 \pm 8)\%$$

$$A_{CP}(K_L^0 e^\pm \nu) = (-0.6 \pm 1.6)\%$$

$$A_{CP}(K_S^0 \pi^\pm) = (-0.41 \pm 0.09)\%$$

$$A_{CP}(K_L^0 K^\pm) \text{ in } D^\pm \rightarrow K_L^0 K^\pm = (-4.2 \pm 3.4) \times 10^{-2}$$

$$A_{CP}(K^\mp 2\pi^\pm) = (-0.18 \pm 0.16)\%$$

$$A_{CP}(K^\mp \pi^\pm \pi^\pm \pi^0) = (-0.3 \pm 0.7)\%$$

$$A_{CP}(K_S^0 \pi^\pm \pi^0) = (-0.1 \pm 0.7)\%$$

$$A_{CP}(K_S^0 \pi^\pm \eta) \text{ in } D^\pm \rightarrow K_S^0 \pi^\pm \eta = (-0.9 \pm 3.1) \times 10^{-2}$$

$$A_{CP}(K_S^0 \pi^\pm \pi^+ \pi^-) = (0.0 \pm 1.2)\%$$

$$A_{CP}(K^\pm \pi^+ \pi^- \pi^0) \text{ in } D^\pm \rightarrow K^\pm \pi^+ \pi^- \pi^0 = -0.04 \pm 0.06$$

$$A_{CP}(\pi^\pm \pi^0) = (0.4 \pm 1.3)\% \quad (S = 1.7)$$

$$A_{CP}(\pi^\pm \eta) = (0.3 \pm 0.5)\%$$

$$A_{CP}(\pi^\pm \pi^0 \eta) \text{ in } D^\pm \rightarrow \pi^\pm \pi^0 \eta = (-6 \pm 7) \times 10^{-2}$$

$$A_{CP}(\pi^\pm \eta \eta) \text{ in } D^\pm \rightarrow \pi^\pm \eta \eta = (8 \pm 9) \times 10^{-2}$$

$$A_{CP}(\pi^\pm \eta'(958)) = (0.41 \pm 0.23)\% \quad (S = 1.2)$$

$$A_{CP}(\bar{K}^0 / K^0 K^\pm) = (0.11 \pm 0.17)\%$$

$$A_{CP}(K_S^0 K^\pm) = (-0.01 \pm 0.07)\%$$

$$A_{CP}(K_S^0 K^\pm \pi^0) \text{ in } D^\pm \rightarrow K_S^0 K^\pm \pi^0 = (1 \pm 4) \times 10^{-2}$$

$$A_{CP}(K_L^0 K^\pm \pi^0) \text{ in } D^\pm \rightarrow K_L^0 K^\pm \pi^0 = (-1 \pm 4) \times 10^{-2}$$

$$A_{CP}(K^+ K^- \pi^\pm) = (0.37 \pm 0.29)\%$$

$$A_{CP}(K^\pm K^{*0}) = (-0.3 \pm 0.4)\%$$

$$A_{CP|S}(K^+ \bar{K}^{*0}) \text{ in } D^\pm \rightarrow K^- K^+ \pi^\pm = (-0.3 \pm 0.6) \times 10^{-3}$$

$$A_{CP}(\phi \pi^\pm) = (0.01 \pm 0.09)\% \quad (S = 1.8)$$

$$A_{CP|S}(\phi \pi^+) \text{ in } D^\pm \rightarrow K^- K^+ \pi^\pm = (1.0 \pm 0.5) \times 10^{-3}$$

$$A_{CP}(K^\pm K_0^*(1430)^0) = (8_{-6}^{+7})\%$$

$$A_{CP}(K^\pm K_2^*(1430)^0) = (43_{-26}^{+20})\%$$

$$A_{CP}(K^\pm K_0^*(700)) = (-12_{-13}^{+18})\%$$

$$A_{CP}(a_0(1450)^0 \pi^\pm) = (-19_{-16}^{+14})\%$$

$$A_{CP}(\phi(1680) \pi^\pm) = (-9 \pm 26)\%$$

$$A_{CP}(\pi^\pm 2\pi^0) \text{ in } D^\pm \rightarrow \pi^\pm 2\pi^0 = (5.6 \pm 2.7)\%$$

$$A_{CP}(\pi^+ \pi^- \pi^\pm) = (0.5 \pm 2.0)\%$$

$$A_{CP}(2\pi^\pm \pi^\mp \pi^0) \text{ in } D^\pm \rightarrow 2\pi^\pm \pi^\mp \pi^0 = (0.3 \pm 2.0)\%$$

$$A_{CP}(2\pi^\pm \pi^\mp 2\pi^0) \text{ in } D^\pm \rightarrow 2\pi^\pm \pi^\mp 2\pi^0 = (-4 \pm 4)\%$$

$$A_{CP}(\pi^+ \pi^- \pi^\pm \eta) \text{ in } D^\pm \rightarrow \pi^+ \pi^- \pi^\pm \eta = (3 \pm 5) \times 10^{-2}$$

$$A_{CP}(K_S^0 K^\pm \pi^+ \pi^-) = (-4 \pm 7)\%$$

$$A_{CP}(K^\pm \pi^0) = (-3 \pm 5)\%$$

$$A_{CP}(K^\pm \eta) \text{ in } D^\pm \rightarrow K^\pm \eta = (-6 \pm 11) \times 10^{-2}$$

NODE=MXXX035

NODE=S031

NODE=S031M;DTYPE=M

NODE=S031T;DTYPE=T

NODE=S031CTA;DTYPE=C;OUR EVAL

CLUMP=C

NODE=S031B94;DTYPE=R;CLUMP=C

NODE=S031C3;DTYPE=R;CLUMP=C

CLUMP=V

NODE=S031A05;DTYPE=v;CLUMP=V

NODE=S031A16;DTYPE=v;CLUMP=V

NODE=S031A5;DTYPE=v;CLUMP=V

NODE=S031A00;DTYPE=v;CLUMP=V

NODE=S031A01;DTYPE=v;CLUMP=V

NODE=S031A02;DTYPE=v;CLUMP=V

NODE=S031A03;DTYPE=v;CLUMP=V

NODE=S031A19;DTYPE=v;CLUMP=V

NODE=S031A04;DTYPE=v;CLUMP=V

NODE=S031A21;DTYPE=v;CLUMP=V

NODE=S031A11;DTYPE=v;CLUMP=V

NODE=S031A12;DTYPE=v;CLUMP=V

NODE=S031A22;DTYPE=v;CLUMP=V

NODE=S031A23;DTYPE=v;CLUMP=V

NODE=S031A13;DTYPE=v;CLUMP=V

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NODE=S031A6;DTYPE=v;CLUMP=V

NODE=S031A18;DTYPE=v;CLUMP=V

NODE=S031A17;DTYPE=v;CLUMP=V

NODE=S031A1;DTYPE=v;CLUMP=V

NODE=S031A2;DTYPE=v;CLUMP=V

NODE=S031A32;DTYPE=v;CLUMP=V

NODE=S031A3;DTYPE=v;CLUMP=V

NODE=S031A31;DTYPE=v;CLUMP=V

NODE=S031A06;DTYPE=v;CLUMP=V

NODE=S031A07;DTYPE=v;CLUMP=V

NODE=S031A08;DTYPE=v;CLUMP=V

NODE=S031A09;DTYPE=v;CLUMP=V

NODE=S031A10;DTYPE=v;CLUMP=V

NODE=S031A25;DTYPE=v;CLUMP=V

NODE=S031A4;DTYPE=v;CLUMP=V

NODE=S031A26;DTYPE=v;CLUMP=V

NODE=S031A27;DTYPE=v;CLUMP=V

NODE=S031A20;DTYPE=v;CLUMP=V

NODE=S031CPK;DTYPE=v;CLUMP=V

NODE=S031A14;DTYPE=v;CLUMP=V

NODE=S031A24;DTYPE=v;CLUMP=V

χ^2 tests of CP-violation (CPV)Local CPV in $D^\pm \rightarrow \pi^+ \pi^- \pi^\pm = 78.1\%$ Local CPV in $D^\pm \rightarrow K^+ K^- \pi^\pm = 31\%$ Local CPV in $D^\pm \rightarrow K^+ K^- K^\pm = 31.6\%$

CP violating asymmetries of P-odd (T-odd) moments

 $A_T(K_S^0 K^\pm \pi^+ \pi^-) = (-3 \pm 8) \times 10^{-3} [b] \quad (S = 1.1)$ $A_{Tviol}(K^+ K^- K_S^0 \pi^\pm)$ in $D^\pm \rightarrow K^+ K^- K_S^0 \pi^\pm = (-3.3 \pm 2.7)\%$ D^+ form factors $f_+(0)|V_{cs}|$ in $\bar{K}^0 \ell^+ \nu_\ell = 0.7163 \pm 0.0033$ $r_1 \equiv a_1/a_0$ in $\bar{K}^0 \ell^+ \nu_\ell = -2.13 \pm 0.14$ $r_2 \equiv a_2/a_0$ in $\bar{K}^0 \ell^+ \nu_\ell = -3 \pm 12 \quad (S = 1.5)$ $f_+(0)|V_{cd}|$ in $\pi^0 \ell^+ \nu_\ell = 0.1407 \pm 0.0025$ $r_1 \equiv a_1/a_0$ in $\pi^0 \ell^+ \nu_\ell = -2.00 \pm 0.13$ $r_2 \equiv a_2/a_0$ in $\pi^0 \ell^+ \nu_\ell = -4 \pm 5$ $f_+(0)|V_{cd}|$ in $D^+ \rightarrow \eta \ell^+ \nu_\ell (\ell = e \text{ or } \nu) = (8.4 \pm 0.4) \times 10^{-2}$ $r_1 \equiv a_1/a_0$ in $D^+ \rightarrow \eta e^+ \nu_e = -5.3 \pm 2.7 \quad (S = 1.9)$ $r_\nu \equiv V(0)/A_1(0)$ in $D^+ \rightarrow \omega e^+ \nu_e = 1.24 \pm 0.11$ $r_2 \equiv A_2(0)/A_1(0)$ in $D^+ \rightarrow \omega e^+ \nu_e = 1.06 \pm 0.16$ $r_\nu \equiv V(0)/A_1(0)$ in $D^+, D^0 \rightarrow \rho e^+ \nu_e = 1.53 \pm 0.08$ $r_2 \equiv A_2(0)/A_1(0)$ in $D^+, D^0 \rightarrow \rho e^+ \nu_e = 0.82 \pm 0.05$ $r_\nu \equiv V(0)/A_1(0)$ in $\bar{K}^*(892)^0 \ell^+ \nu_\ell = 1.48 \pm 0.05 \quad (S = 1.9)$ $r_2 \equiv A_2(0)/A_1(0)$ in $\bar{K}^*(892)^0 \ell^+ \nu_\ell = 0.794 \pm 0.020$ $r_3 \equiv A_3(0)/A_1(0)$ in $\bar{K}^*(892)^0 \ell^+ \nu_\ell = 0.0 \pm 0.4$ Γ_L/Γ_T in $\bar{K}^*(892)^0 \ell^+ \nu_\ell = 1.13 \pm 0.08$ Γ_+/ Γ_- in $\bar{K}^*(892)^0 \ell^+ \nu_\ell = 0.22 \pm 0.06 \quad (S = 1.6)$

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as \bar{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 $2\Gamma(K_S^0) = \Gamma(\bar{K}^0)$.

CLUMP=L

NODE=S031L01;DTYPE=v;CLUMP=L

NODE=S031L02;DTYPE=v;CLUMP=L;OUR
EVAL; \rightarrow UNCHECKED \leftarrow
NODE=S031A28;DTYPE=v;CLUMP=L

CLUMP=T

NODE=S031TV0;DTYPE=t;CLUMP=T

NODE=S031TV1;DTYPE=t;CLUMP=T

CLUMP=F

NODE=S031FK0;DTYPE=f;CLUMP=F

NODE=S031FK1;DTYPE=f;CLUMP=F

NODE=S031FK2;DTYPE=f;CLUMP=F

NODE=S031FP0;DTYPE=f;CLUMP=F

NODE=S031FP1;DTYPE=f;CLUMP=F

NODE=S031FP2;DTYPE=f;CLUMP=F

NODE=S031FE0;DTYPE=f;CLUMP=F

NODE=S031FE1;DTYPE=f;CLUMP=F

NODE=S031FO1;DTYPE=f;CLUMP=F

NODE=S031FO2;DTYPE=f;CLUMP=F

NODE=S031RVD;DTYPE=f;CLUMP=F

NODE=S031R2D;DTYPE=f;CLUMP=F

NODE=S031FRV;DTYPE=f;CLUMP=F

NODE=S031FR2;DTYPE=f;CLUMP=F

NODE=S031FR3;DTYPE=f;CLUMP=F

NODE=S031GLT;DTYPE=f;CLUMP=F

NODE=S031GPM;DTYPE=f;CLUMP=F

NODE=S031215;NODE=S031

 D^+ DECAY MODES

	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
Inclusive modes			
e^+ semileptonic	(16.07 \pm 0.30) %		—
μ^+ anything	(17.6 \pm 3.2) %		—
K^- anything	(25.7 \pm 1.4) %		—
K_S^0 anything	(33.1 \pm 0.4) %		—
K^+ anything	(5.9 \pm 0.8) %		—
$K^*(892)^-$ anything	(6 \pm 5) %		—
$\bar{K}^*(892)^0$ anything	(23 \pm 5) %		—
$K^*(892)^0$ anything	< 6.6 %	CL=90%	—
η anything	(6.3 \pm 0.7) %		—
η' anything	(1.04 \pm 0.18) %		—
ϕ anything	(1.12 \pm 0.04) %		—
$\pi^+ \pi^+ \pi^-$ anything	(15.25 \pm 0.20) %		—

NODE=S031;CLUMP=A

DESIG=7

DESIG=22

DESIG=8

DESIG=9

DESIG=10

DESIG=248

DESIG=244

DESIG=245

DESIG=21

DESIG=250

DESIG=219

DESIG=363

Leptonic and semileptonic modes

				NODE=S031;CLUMP=B
$e^+ \nu_e$	< 8.8	$\times 10^{-6}$ CL=90%	935	DESIG=6
$\gamma e^+ \nu_e$	< 3.0	$\times 10^{-5}$ CL=90%	935	DESIG=281
$\mu^+ \nu_\mu$	(3.74 ± 0.17)	$\times 10^{-4}$	932	DESIG=20
$\tau^+ \nu_\tau$	(1.20 ± 0.27)	$\times 10^{-3}$	90	DESIG=247
$\bar{K}^0 e^+ \nu_e$	(8.81 ± 0.07)	%	869	DESIG=71
$\bar{K}^0 \mu^+ \nu_\mu$	(8.68 ± 0.10)	%	865	DESIG=49
$K_S^0 \pi^0 e^+ \nu_e$	(8.81 ± 0.23)	$\times 10^{-3}$	863	DESIG=377
$(K_S^0 \pi^0)_{S-wave} e^+ \nu_e$	(5.4 ± 0.4)	$\times 10^{-4}$	863	DESIG=385
$\bar{K}^*(892)^0 e^+ \nu_e, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(8.27 ± 0.22)	$\times 10^{-3}$	–	DESIG=386
$K^- \pi^+ e^+ \nu_e$	(4.02 ± 0.18)	% S=3.2	864	DESIG=34
$\bar{K}^*(892)^0 e^+ \nu_e, \bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(3.77 ± 0.17)	%	722	DESIG=81
$(K^- \pi^+) [0.8-1.0] \text{GeV} e^+ \nu_e$	(3.39 ± 0.09)	%	864	DESIG=279
$(K^- \pi^+)_{S-wave} e^+ \nu_e$	(2.28 ± 0.11)	$\times 10^{-3}$	–	DESIG=270
$\bar{K}^*(1410)^0 e^+ \nu_e,$	< 6	$\times 10^{-3}$ CL=90%	–	DESIG=271
$\bar{K}^*(1410)^0 \rightarrow K^- \pi^+$				
$\bar{K}_2^*(1430)^0 e^+ \nu_e,$	< 5	$\times 10^{-4}$ CL=90%	–	DESIG=272
$\bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+$				
$K^- \pi^+ e^+ \nu_e$ nonresonant	< 7	$\times 10^{-3}$ CL=90%	864	DESIG=45
$\bar{K}^*(892)^0 e^+ \nu_e$	(5.40 ± 0.10)	% S=1.1	722	DESIG=44
$K^- \pi^+ \mu^+ \nu_\mu$	(3.62 ± 0.33)	%	851	DESIG=184
$\bar{K}^*(892)^0 \mu^+ \nu_\mu,$	(3.52 ± 0.10)	%	717	DESIG=185;OUR EVAL;→ UNCHECKED ←
$\bar{K}^*(892)^0 \rightarrow K^- \pi^+$				
$K^- \pi^+ \mu^+ \nu_\mu$ nonresonant	(1.9 ± 0.5)	$\times 10^{-3}$	851	DESIG=186
$\bar{K}^*(892)^0 \mu^+ \nu_\mu$	(5.27 ± 0.15)	% S=1.1	717	DESIG=179
$K^- \pi^+ \pi^0 \mu^+ \nu_\mu$	< 1.5	$\times 10^{-3}$ CL=90%	825	DESIG=187
$\bar{K}_1(1270)^0 e^+ \nu_e, \bar{K}_1^0 \rightarrow K^- \pi^+ \pi^0$	(1.06 ± 0.15)	$\times 10^{-3}$	–	DESIG=314
$\bar{K}_1(1270)^0 e^+ \nu_e, \bar{K}_1^0 \rightarrow K_S^0 \pi^+ \pi^-$	(1.5 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ 0.5 / 0.4)	$\times 10^{-4}$	–	DESIG=387
$\bar{K}_0^*(1430)^0 \mu^+ \nu_\mu$	< 2.3	$\times 10^{-4}$ CL=90%	380	DESIG=242
$\bar{K}^*(1680)^0 \mu^+ \nu_\mu$	< 1.4	$\times 10^{-3}$ CL=90%	105	DESIG=243
$\pi^0 e^+ \nu_e$	(3.72 ± 0.17)	$\times 10^{-3}$ S=2.0	930	DESIG=239
$\pi^0 \mu^+ \nu_\mu$	(3.50 ± 0.15)	$\times 10^{-3}$	927	DESIG=289
$\eta e^+ \nu_e$	(1.11 ± 0.07)	$\times 10^{-3}$	855	DESIG=265
$\eta \mu^+ \nu_\mu$	(1.04 ± 0.11)	$\times 10^{-3}$	851	DESIG=317
$\pi^- \pi^+ e^+ \nu_e$	(2.45 ± 0.08)	$\times 10^{-3}$	924	DESIG=295
$f_0(500)^0 e^+ \nu_e, f_0(500)^0 \rightarrow \pi^+ \pi^-$	(6.2 ± 0.4)	$\times 10^{-4}$	–	DESIG=296
$\rho^0 e^+ \nu_e$	(1.87 ± 0.06)	$\times 10^{-3}$	774	DESIG=154
$f_0(500)^0 \mu^+ \nu_\mu, f_0^0 \rightarrow \pi^+ \pi^-$	(7.2 ± 1.5)	$\times 10^{-4}$	–	DESIG=379
$\rho^0 \mu^+ \nu_\mu$	(1.64 ± 0.16)	$\times 10^{-3}$	770	DESIG=188
$\omega e^+ \nu_e$	(1.69 ± 0.11)	$\times 10^{-3}$	771	DESIG=240
$\omega \mu^+ \nu_\mu$	(1.77 ± 0.21)	$\times 10^{-3}$	767	DESIG=322
$\eta'(958) e^+ \nu_e$	(2.0 ± 0.4)	$\times 10^{-4}$	690	DESIG=266
$a(980)^0 e^+ \nu_e, a(980)^0 \rightarrow \eta \pi^0$	(1.7 $\begin{smallmatrix} + \\ - \end{smallmatrix}$ 0.8 / 0.7)	$\times 10^{-4}$	–	DESIG=283
$K_S^0 K_S^0 e^+ \nu_e$	< 1.54	$\times 10^{-5}$ CL=90%	791	DESIG=373
$K_S^0 \eta e^+ \nu_e$	< 2.0	$\times 10^{-4}$ CL=90%	775	DESIG=388
$\eta \eta e^+ \nu_e$	< 1.0	$\times 10^{-4}$ CL=90%	757	DESIG=389
$K^+ K^- e^+ \nu_e$	< 2.10	$\times 10^{-5}$ CL=90%	794	DESIG=372
$b_1(1235)^0 e^+ \nu_e, b_1^0 \rightarrow \omega \pi^0$	< 1.75	$\times 10^{-4}$ CL=90%	–	DESIG=330
$\phi e^+ \nu_e$	< 1.3	$\times 10^{-5}$ CL=90%	657	DESIG=124
$D^0 e^+ \nu_e$	< 1.0	$\times 10^{-4}$ CL=90%	5	DESIG=282

Hadronic modes with a \bar{K} or $\bar{K}K\bar{K}$				NODE=S031;CLUMP=D
$K_S^0 \pi^+$	(1.561 ± 0.031) %	S=1.7	863	DESIG=2
$K_L^0 \pi^+$	(1.46 ± 0.05) %		863	DESIG=256
$K^- 2\pi^+$	[c] (9.38 ± 0.16) %	S=1.6	846	DESIG=1
$(K^- \pi^+)_{S\text{-wave}} \pi^+$	(7.52 ± 0.17) %		846	DESIG=251
$\bar{K}_0^*(1430)^0 \pi^+$,	[d] (1.25 ± 0.06) %		382	DESIG=191
$\bar{K}_0^*(1430)^0 \rightarrow K^- \pi^+$				
$\bar{K}^*(892)^0 \pi^+$,	(1.04 ± 0.12) %		714	DESIG=83
$\bar{K}^*(892)^0 \rightarrow K^- \pi^+$				
$\bar{K}^*(1410)^0 \pi^+$, $\bar{K}^{*0} \rightarrow$	not seen		381	DESIG=147;OUR EVAL;→ UNCHECKED ←
$K^- \pi^+$				
$\bar{K}_2^*(1430)^0 \pi^+$,	[d] (2.3 ± 0.7) × 10 ⁻⁴		371	DESIG=232
$\bar{K}_2^*(1430)^0 \rightarrow K^- \pi^+$				
$\bar{K}^*(1680)^0 \pi^+$,	[d] (2.2 ± 1.1) × 10 ⁻⁴		58	DESIG=192
$\bar{K}^*(1680)^0 \rightarrow K^- \pi^+$				
$K^- (2\pi^+)_{I=2}$	(1.45 ± 0.26) %		–	DESIG=263
$K_S^0 \pi^+ \pi^0$	[c] (7.36 ± 0.20) %		845	DESIG=12
$K_S^0 \rho^+$	(6.14 ± 0.60 / -0.35) %		677	DESIG=18
$K_S^0 \rho(1450)^+$, $\rho^+ \rightarrow \pi^+ \pi^0$	(1.5 ± 1.2 / -1.4) × 10 ⁻³		–	DESIG=273
$\bar{K}^*(892)^0 \pi^+$,	(2.64 ± 0.32) × 10 ⁻³		714	DESIG=82
$\bar{K}^*(892)^0 \rightarrow K_S^0 \pi^0$				
$\bar{K}_0^*(1430)^0 \pi^+$, $\bar{K}_0^{*0} \rightarrow$	(2.7 ± 0.9) × 10 ⁻³		–	DESIG=274
$K_S^0 \pi^0$				
$\bar{K}_0^*(1680)^0 \pi^+$, $\bar{K}_0^{*0} \rightarrow$	(10 ± 7 / -10) × 10 ⁻⁴		–	DESIG=275
$K_S^0 \pi^0$				
$\bar{\kappa}^0 \pi^+$, $\bar{\kappa}^0 \rightarrow K_S^0 \pi^0$	(6 ± 5 / 4) × 10 ⁻³		–	DESIG=276
$K_S^0 \pi^+ \pi^0$ nonresonant	(3 ± 4) × 10 ⁻³		845	DESIG=27
$K_S^0 \pi^+ \pi^0$ nonresonant and	(1.37 ± 0.21 / 0.40) %		–	DESIG=277
$\bar{\kappa}^0 \pi^+$				
$(K_S^0 \pi^0)_{S\text{-wave}} \pi^+$	(1.27 ± 0.27 / 0.33) %		845	DESIG=278
$K_S^0 \pi^+ \omega$	(7.1 ± 0.5) × 10 ⁻³		606	DESIG=341
$K_S^0 \pi^+ \eta$	(1.27 ± 0.05) %		722	DESIG=323
$K_S^0 a_0(980)^+$, $a_0^+ \rightarrow \pi^+ \eta$	(1.33 ± 0.06) %		–	DESIG=390
$\bar{K}_0^*(1430)^0 \pi^+$, $\bar{K}_0^{*0} \rightarrow K_S^0 \eta$	(1.38 ± 0.26) × 10 ⁻³		–	DESIG=391
$K_S^0 \pi^+ \eta'(958)$	(1.90 ± 0.21) × 10 ⁻³		481	DESIG=288
$K^- 2\pi^+ \pi^0$	[e] (6.25 ± 0.18) %		817	DESIG=17
$K_S^0 2\pi^+ \pi^-$	[e] (3.10 ± 0.09) %		814	DESIG=13
$K_S^0 \pi^+ 2\pi^0$	(2.89 ± 0.09) %		817	DESIG=342
$K_S^0 a_1(1260)^+$, $a_1^+ \rightarrow$	(8.7 ± 1.6) × 10 ⁻³		–	DESIG=366
$\rho(770)^+ \pi^0$				
$K_S^0 a_1(1260)^+$, $a_1^+ \rightarrow$	(1.0 ± 0.6) × 10 ⁻³		–	DESIG=367
$f_0(500) \pi^+$, $f_0 \rightarrow \pi^0 \pi^0$				
$\bar{K}_1(1400)^0 \pi^+$, $\bar{K}_1^0 \rightarrow$	(2.3 ± 0.4) × 10 ⁻³		–	DESIG=368
$\bar{K}^*(892)^0 \pi^0$, $\bar{K}^{*0} \rightarrow$				
$K_S^0 \pi^0$				
$\bar{K}^*(892)^0 \rho^+$, $\bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(9.7 ± 0.9) × 10 ⁻³		–	DESIG=369
$\bar{K}^*(892)^0 \pi^+ \pi^0$ non-resonant,	(2.6 ± 0.7) × 10 ⁻³		–	DESIG=370
$\bar{K}^{*0} \rightarrow K_S^0 \pi^0$				
$K_S^0 \rho^+ \pi^0$ non-resonant	(4.8 ± 0.5) × 10 ⁻³		–	DESIG=371
$K^- 2\pi^+ \eta$	(1.35 ± 0.12) × 10 ⁻³		657	DESIG=325
$K_S^0 \pi^+ \pi^0 \eta$	(1.22 ± 0.25) × 10 ⁻³		657	DESIG=326
$K^- 3\pi^+ \pi^-$	[c] (5.7 ± 0.5) × 10 ⁻³	S=1.1	772	DESIG=14
$\bar{K}^*(892)^0 2\pi^+ \pi^-$,	(1.2 ± 0.4) × 10 ⁻³		645	DESIG=57
$\bar{K}^*(892)^0 \rightarrow K^- \pi^+$				

$\bar{K}^*(892)^0 \rho^0 \pi^+$	$(2.3 \pm 0.4) \times 10^{-3}$	239	DESIG=58
$\bar{K}^*(892)^0 \rightarrow K^- \pi^+$			
$\bar{K}^*(892)^0 a_1(1260)^+$	[f] $(9.3 \pm 1.9) \times 10^{-3}$	†	DESIG=233
$K^- \rho^0 2\pi^+$	$(1.72 \pm 0.28) \times 10^{-3}$	524	DESIG=206
$K^- 3\pi^+ \pi^-$ nonresonant	$(4.0 \pm 2.9) \times 10^{-4}$	772	DESIG=207
$K_S^0 2\pi^+ \pi^- \pi^0$	$(1.53 \pm 0.08) \%$	773	DESIG=343
$K_S^0 \pi^+ 3\pi^0$	$(5.5 \pm 0.5) \times 10^{-3}$	776	DESIG=344
$K^- 2\pi^+ 2\pi^0$	$(4.95 \pm 0.32) \times 10^{-3}$	776	DESIG=345
$K^+ 2K_S^0$	$(2.54 \pm 0.13) \times 10^{-3}$	545	DESIG=59
$K^+ K^- K_S^0 \pi^+$	$(2.4 \pm 0.5) \times 10^{-4}$	436	DESIG=227
Pionic modes			
$\pi^+ \pi^0$	$(1.247 \pm 0.033) \times 10^{-3}$	925	NODE=S031;CLUMP=F DESIG=15
$2\pi^+ \pi^-$	$(3.27 \pm 0.09) \times 10^{-3}$	909	DESIG=3
$\rho^0 \pi^+$	$(8.4 \pm 0.8) \times 10^{-4}$	767	DESIG=47
$\pi^+(\pi^+ \pi^-)_{S\text{-wave}}$	$(2.01 \pm 0.06) \times 10^{-3}$	909	DESIG=237
$\sigma \pi^+, \sigma \rightarrow \pi^+ \pi^-$	$(1.38 \pm 0.10) \times 10^{-3}$	-	DESIG=221
$f_0(980) \pi^+, f_0 \rightarrow \pi^+ \pi^-$	$(1.57 \pm 0.32) \times 10^{-4}$	669	DESIG=222
$f_0(1370) \pi^+, f_0 \rightarrow \pi^+ \pi^-$	$(8 \pm 4) \times 10^{-5}$	-	DESIG=224
$\omega \pi^+, \omega \rightarrow \pi^+ \pi^-$	$(3.4 \pm 0.5) \times 10^{-6}$	-	DESIG=364
$f_2(1270) \pi^+, f_2 \rightarrow \pi^+ \pi^-$	$(4.58 \pm 0.28) \times 10^{-4}$	485	DESIG=228
$\rho(1450)^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	$(1.8 \pm 0.5) \times 10^{-4}$	338	DESIG=225
$\rho(1700)^0 \pi^+, \rho^0 \rightarrow \pi^+ \pi^-$	$(1.9 \pm 0.5) \times 10^{-4}$	-	DESIG=365
$f_0(1500) \pi^+, f_0 \rightarrow \pi^+ \pi^-$	$(1.1 \pm 0.4) \times 10^{-4}$	-	DESIG=252
$f_0(1710) \pi^+, f_0 \rightarrow \pi^+ \pi^-$	$< 5 \times 10^{-5}$ CL=95%	-	DESIG=253
$f_0(1790) \pi^+, f_0 \rightarrow \pi^+ \pi^-$	$< 7 \times 10^{-5}$ CL=95%	-	DESIG=254
$(\pi^+ \pi^+)_{S\text{-wave}} \pi^-$	$< 1.2 \times 10^{-4}$ CL=95%	909	DESIG=255
$2\pi^+ \pi^-$ nonresonant	$< 1.1 \times 10^{-4}$ CL=95%	909	DESIG=46
$\pi^+ 2\pi^0$	$(4.61 \pm 0.15) \times 10^{-3}$	910	DESIG=246
$2\pi^+ \pi^- \pi^0$	$(1.165 \pm 0.030) \%$	883	DESIG=50
$\pi^+ 3\pi^0$	$(4.17 \pm 0.26) \times 10^{-3}$	885	DESIG=349
$\pi^+ 4\pi^0$	$(1.9 \pm 0.4) \times 10^{-3}$	851	DESIG=352
$2\pi^+ \pi^- 2\pi^0$	$(1.07 \pm 0.05) \%$	848	DESIG=350
$3\pi^+ 2\pi^-$	$(1.66 \pm 0.16) \times 10^{-3}$ S=1.1	845	DESIG=48
$2\pi^+ \pi^- 3\pi^0$	$(3.42 \pm 0.35) \times 10^{-3}$	803	DESIG=355
$3\pi^+ 2\pi^- \pi^0$	$(2.34 \pm 0.27) \times 10^{-3}$	799	DESIG=354
$\eta \pi^+$	$(3.77 \pm 0.09) \times 10^{-3}$	848	DESIG=51
$\eta \pi^+ \pi^0$	$(2.05 \pm 0.35) \times 10^{-3}$ S=2.2	831	DESIG=257
$\rho(770)^+ \eta, \rho^+ \rightarrow \pi^+ \pi^0$	$(1.9 \pm 0.8) \times 10^{-4}$	-	DESIG=380
$a_0(980)^+ \pi^0, a_0^+ \rightarrow \pi^+ \eta$	$(9.0 \pm 1.9) \times 10^{-4}$	-	DESIG=381
$a_0(980)^0 \pi^+, a_0^0 \rightarrow \pi^0 \eta$	$(3.5 \pm 1.1) \times 10^{-4}$	-	DESIG=382
$a_2(1700)^+ \pi^0, a_2^+ \rightarrow \pi^+ \eta$	$(9 \pm 5) \times 10^{-5}$	-	DESIG=383
$a_0(1450)^+ \pi^0, a_0^+ \rightarrow \pi^+ \eta$	$(1.4 \pm 0.6) \times 10^{-4}$	-	DESIG=384
$\eta 2\pi^+ \pi^-$	$(3.41 \pm 0.20) \times 10^{-3}$	798	DESIG=327
$\eta \pi^+ 2\pi^0$	$(3.20 \pm 0.33) \times 10^{-3}$	801	DESIG=328
$\eta \pi^+ 3\pi^0$	$(2.9 \pm 0.5) \times 10^{-3}$	759	DESIG=353
$\eta 2\pi^+ \pi^- \pi^0$	$(3.88 \pm 0.34) \times 10^{-3}$	755	DESIG=351
$\eta \eta \pi^+$	$(2.96 \pm 0.26) \times 10^{-3}$	700	DESIG=329
$\omega \pi^+$	$(2.8 \pm 0.6) \times 10^{-4}$	764	DESIG=52
$\omega \pi^+ \pi^0$	$(3.9 \pm 0.9) \times 10^{-3}$	742	DESIG=331
$\eta'(958) \pi^+$	$(4.97 \pm 0.19) \times 10^{-3}$	681	DESIG=90
$\eta'(958) \pi^+ \pi^0$	$(1.6 \pm 0.5) \times 10^{-3}$	654	DESIG=258

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

$K_S^0 K^+$	$(3.04 \pm 0.09) \times 10^{-3}$	S=2.2	793	NODE=S031;CLUMP=H		
$K_L^0 K^+$	$(3.21 \pm 0.16) \times 10^{-3}$		793	DESIG=16		
$K_S^0 K^+ \pi^0$	$(5.07 \pm 0.30) \times 10^{-3}$		744	DESIG=299		
$K^*(892)^+ K_S^0, K^{*+} \rightarrow K^+ \pi^0$	$(2.89 \pm 0.30) \times 10^{-3}$		612	DESIG=298		
$\bar{K}^*(892)^0 K^+, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	$(5.2 \pm 1.4) \times 10^{-4}$		613	DESIG=338		
$K_L^0 K^+ \pi^0$	$(5.24 \pm 0.31) \times 10^{-3}$		744	DESIG=300		
$K^+ K^- \pi^+$	[c] $(9.68 \pm 0.18) \times 10^{-3}$		744	DESIG=4		
$K^+ \bar{K}^*(892)^0, \bar{K}^*(892)^0 \rightarrow K^- \pi^+$	$(2.49 \pm 0.08) \times 10^{-3}$		613	DESIG=86		
$K^+ \bar{K}_0^*(1430)^0, \bar{K}_0^*(1430)^0 \rightarrow K^- \pi^+$	$(1.82 \pm 0.35) \times 10^{-3}$		–	DESIG=238		
$K^+ \bar{K}_2^*(1430)^0, \bar{K}_2^* \rightarrow K^- \pi^+$	$(1.6 \pm 1.2) \times 10^{-4}$		–	DESIG=259		
$K^+ \bar{K}_0^*(700), \bar{K}_0^* \rightarrow K^- \pi^+$	$(6.8 \pm 3.5) \times 10^{-4}$		–	DESIG=260		
$a_0(1450)^0 \pi^+, a_0^0 \rightarrow K^+ K^-$	$(4.5 \pm 7.0) \times 10^{-4}$		–	DESIG=261		
$\phi(1680) \pi^+, \phi \rightarrow K^+ K^-$	$(4.9 \pm 4.0) \times 10^{-5}$		–	DESIG=262		
$\phi \pi^+, \phi \rightarrow K^+ K^-$	$(2.69 \pm 0.07) \times 10^{-3}$		647	DESIG=89		
$\phi \pi^+$	$(5.70 \pm 0.14) \times 10^{-3}$		647	DESIG=315		
$K^+ K^- \pi^+ \pi^0$	$(6.62 \pm 0.32) \times 10^{-3}$		682	DESIG=335		
$K_S^0 K_S^0 \pi^+$	$(2.97 \pm 0.10) \times 10^{-3}$		741	DESIG=280		
$K_S^0 K^*(892)^+, K^{*+} \rightarrow K_S^0 \pi^+$	$(2.90 \pm 0.11) \times 10^{-3}$		–	DESIG=376		
$K_S^0 (K_S^0 \pi^+) \rightarrow K_S^0 K_S^0 \pi^+$	$(1.31 \pm 0.34) \times 10^{-4}$		–	DESIG=392		
$K_S^0 K_S^0 \pi^+ \pi^0$	$(1.34 \pm 0.21) \times 10^{-3}$		679	DESIG=337		
$K_S^0 K^+ \eta$	$(1.8 \pm 0.5) \times 10^{-4}$		516	DESIG=324		
$K^+ K_S^0 \pi^+ \pi^-$	$(1.89 \pm 0.13) \times 10^{-3}$		678	DESIG=134		
$K_S^0 K^+ \pi^0 \pi^0$	$(5.8 \pm 1.3) \times 10^{-4}$		683	DESIG=336		
$K_S^0 K^- 2\pi^+$	$(2.27 \pm 0.13) \times 10^{-3}$		678	DESIG=130		
$K^+ K^- 2\pi^+ \pi^-$	$(2.3 \pm 1.2) \times 10^{-4}$		601	DESIG=88		

A few poorly measured branching fractions:

$\phi \pi^+ \pi^0$	$(2.3 \pm 1.0) \%$		619	CLUMP=I;NODE=S031		
$\phi \rho^+$	$< 1.5 \%$	CL=90%	260	DESIG=53		
$K^+ K^- \pi^+ \pi^0$ non- ϕ	$(1.5 \pm 0.7) \%$		682	DESIG=93		

Radiative modes

$\rho(770)^+ \gamma$	< 1.3	$\times 10^{-5}$ CL=90%	–	NODE=S031;CLUMP=G		
$K^*(892)^+ \gamma$	< 1.8	$\times 10^{-5}$ CL=90%	722	DESIG=374		

Doubly Cabibbo-suppressed modes

$K^+ \pi^0$	$(2.08 \pm 0.21) \times 10^{-4}$	S=1.4	864	NODE=S031;CLUMP=K		
$K^+ \eta$	$(1.25 \pm 0.16) \times 10^{-4}$	S=1.1	776	DESIG=234		
$K^+ \eta'(958)$	$(1.85 \pm 0.20) \times 10^{-4}$		571	DESIG=268		
$K^+ 2\pi^0$	$(2.1 \pm 0.4) \times 10^{-4}$		847	DESIG=269		
$K^*(892)^+ \pi^0$	$(3.4 \pm 1.4) \times 10^{-4}$		714	DESIG=357		
$K^+ \pi^+ \pi^-$	$(4.91 \pm 0.09) \times 10^{-4}$		846	DESIG=359		
$K^+ \rho^0$	$(1.9 \pm 0.5) \times 10^{-4}$		679	DESIG=5		
$K^+ \eta \pi^0$	$(2.1 \pm 0.5) \times 10^{-4}$		726	DESIG=204		
$K^*(892)^+ \eta$	$(4.4 \pm 1.8) \times 10^{-4}$		586	DESIG=358		
$K^*(892)^0 \pi^+, K^*(892)^0 \rightarrow K^+ \pi^-$	$(2.3 \pm 0.4) \times 10^{-4}$		714	DESIG=360		

$K^+ f_0(980), f_0(980) \rightarrow \pi^+ \pi^-$	$(4.4 \pm 2.6) \times 10^{-5}$	—	DESIG=235
$K_2^*(1430)^0 \pi^+, K_2^*(1430)^0 \rightarrow K^+ \pi^-$	$(3.9 \pm 2.7) \times 10^{-5}$	—	DESIG=236
$K^+ \pi^+ \pi^-$ nonresonant	not seen	846	DESIG=211;OUR EVAL;→ UNCHECKED ←
$K^+ \pi^+ \pi^- \pi^0$	$(1.21 \pm 0.09) \times 10^{-3}$	817	DESIG=332
$K^+ \pi^+ \pi^- \pi^0$ nonresonant	$(1.10 \pm 0.07) \times 10^{-3}$	817	DESIG=340
$K^+ \omega$	$(5.7 \pm_{-2.1}^{+2.5}) \times 10^{-5}$	675	DESIG=334
$2K^+ K^-$	$(6.14 \pm 0.11) \times 10^{-5}$	550	DESIG=181
$\phi(1020)^0 K^+$	$< 2.1 \times 10^{-5}$ CL=90%	—	DESIG=316
$K^+ \phi(1020), \phi \rightarrow K^+ K^-$	$(4.4 \pm 0.6) \times 10^{-6}$	—	DESIG=290
$K^+ (K^+ K^-) s\text{-wave}$	$(5.77 \pm 0.12) \times 10^{-5}$	550	DESIG=291

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

NODE=S031;CLUMP=J

$\pi^+ e^+ e^-$	C1	$< 1.1 \times 10^{-6}$ CL=90%	930	DESIG=41
$\pi^+ \pi^0 e^+ e^-$		$< 1.4 \times 10^{-5}$ CL=90%	925	DESIG=284
$\pi^+ \phi, \phi \rightarrow e^+ e^-$	[g]	$(1.7 \pm_{-0.9}^{+1.4}) \times 10^{-6}$	—	DESIG=241
$\pi^+ \mu^+ \mu^-$	C1	$< 6.7 \times 10^{-8}$ CL=90%	918	DESIG=42
$\pi^+ \phi, \phi \rightarrow \mu^+ \mu^-$	[g]	$(1.8 \pm 0.8) \times 10^{-6}$	—	DESIG=264
$\rho^+ \mu^+ \mu^-$	C1	$< 5.6 \times 10^{-4}$ CL=90%	757	DESIG=198
$K^+ e^+ e^-$	[h]	$< 8.5 \times 10^{-7}$ CL=90%	870	DESIG=113
$K^+ \pi^0 e^+ e^-$		$< 1.5 \times 10^{-5}$ CL=90%	864	DESIG=285
$K_S^0 \pi^+ e^+ e^-$		$< 2.6 \times 10^{-5}$ CL=90%	—	DESIG=286
$K_S^0 K^+ e^+ e^-$		$< 1.1 \times 10^{-5}$ CL=90%	792	DESIG=287
$K^+ \mu^+ \mu^-$	[h]	$< 5.4 \times 10^{-8}$ CL=90%	856	DESIG=114
$\pi^+ e^+ \mu^-$	LF	$< 2.1 \times 10^{-7}$ CL=90%	927	DESIG=110
$\pi^+ e^- \mu^+$	LF	$< 2.2 \times 10^{-7}$ CL=90%	927	DESIG=111
$K^+ e^+ \mu^-$	LF	$< 7.5 \times 10^{-8}$ CL=90%	866	DESIG=115
$K^+ e^- \mu^+$	LF	$< 1.0 \times 10^{-7}$ CL=90%	866	DESIG=116
$\pi^- 2e^+$	L	$< 5.3 \times 10^{-7}$ CL=90%	930	DESIG=117
$\pi^- 2\mu^+$	L	$< 1.4 \times 10^{-8}$ CL=90%	918	DESIG=118
$\pi^- e^+ \mu^+$	L	$< 1.3 \times 10^{-7}$ CL=90%	927	DESIG=119
$\rho^- 2\mu^+$	L	$< 5.6 \times 10^{-4}$ CL=90%	757	DESIG=199
$K^- 2e^+$	L	$< 9 \times 10^{-7}$ CL=90%	870	DESIG=120
$K_S^0 \pi^- 2e^+$	L	$< 3.3 \times 10^{-6}$ CL=90%	863	DESIG=293
$K^- \pi^0 2e^+$	L	$< 8.5 \times 10^{-6}$ CL=90%	864	DESIG=294
$K^- 2\mu^+$	L	$< 1.0 \times 10^{-5}$ CL=90%	856	DESIG=121
$K^- e^+ \mu^+$	L	$< 1.9 \times 10^{-6}$ CL=90%	866	DESIG=122
$K^*(892)^- 2\mu^+$	L	$< 8.5 \times 10^{-4}$ CL=90%	703	DESIG=200
Λe^+	L,B	$< 1.1 \times 10^{-6}$ CL=90%	602	DESIG=318
$\bar{\Lambda} e^+$	L,B	$< 6.5 \times 10^{-7}$ CL=90%	602	DESIG=319
$\Sigma^0 e^+$	L,B	$< 1.7 \times 10^{-6}$ CL=90%	554	DESIG=320
$\bar{\Sigma}^0 e^+$	L,B	$< 1.3 \times 10^{-6}$ CL=90%	554	DESIG=321
$\bar{n} e^+$		$< 1.43 \times 10^{-5}$ CL=90%	699	DESIG=362
$n e^+$		$< 2.91 \times 10^{-5}$ CL=90%	699	DESIG=361

D^0

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

Mass $m = 1864.84 \pm 0.05$ MeV

$m_{D^\pm} - m_{D^0} = 4.822 \pm 0.015$ MeV

Mean life $\tau = (410.3 \pm 1.0) \times 10^{-15}$ s

$c\tau = 123.01$ μm

NODE=S032

NODE=S032M;DTYPE=M

NODE=S032DM;DTYPE=D

NODE=S032T;DTYPE=T

NODE=S032CTA;DTYPE=C;OUR EVAL

Mixing and related parameters

$$|m_{D_1^0} - m_{D_2^0}| = (0.997 \pm 0.116) \times 10^{10} \hbar s^{-1}$$

$$(\Gamma_{D_1^0} - \Gamma_{D_2^0})/\Gamma = 2y = (1.394 \pm 0.056) \times 10^{-2}$$

$$|q/p| = 0.995 \pm 0.016$$

$$A_\Gamma = (0.89 \pm 1.13) \times 10^{-4}$$

$$\phi^{K_S^0 \pi \pi} = 0.02^{+0.04}_{-0.05}$$

$$K^+ \pi^- \text{ relative strong phase: } \cos \delta = 0.990 \pm 0.025$$

$$K^- \pi^+ \pi^0 \text{ coherence factor } R_{K \pi \pi^0} = 0.792 \pm 0.033$$

$$K^- \pi^+ \pi^0 \text{ average relative strong phase } \delta^{K \pi \pi^0} = (198 \pm 10)^\circ$$

$$K^- \pi^- 2\pi^+ \text{ coherence factor } R_{K 3\pi} = 0.52^{+0.10}_{-0.09}$$

$$K^- \pi^- 2\pi^+ \text{ average relative strong phase } \delta^{K 3\pi} = (149^{+26}_{-16})^\circ \quad (S = 1.4)$$

$$D^0 \rightarrow K^- \pi^- 2\pi^+, R_{K 3\pi} (y \cos \delta^{K 3\pi} - x \sin \delta^{K 3\pi}) = (-3.0 \pm 0.7) \times 10^{-3} \text{ TeV}^{-1}$$

$$K_S^0 K^+ \pi^- \text{ coherence factor } R_{K_S^0 K \pi} = 0.70 \pm 0.08$$

$$K_S^0 K^+ \pi^- \text{ average relative strong phase } \delta^{K_S^0 K \pi} = (0 \pm 16)^\circ$$

$$K^* K \text{ coherence factor } R_{K^* K} = 0.94 \pm 0.12$$

$$K^* K \text{ average relative strong phase } \delta^{K^* K} = (-17 \pm 18)^\circ$$

CP-even fractions (labeled by the D^0 decay)

$$CP\text{-even fraction in } D^0 \rightarrow K_S^0 \pi^+ \pi^- \pi^0 \text{ decays} = (23.6 \pm 0.9)\%$$

$$CP\text{-even fraction in } D^0 \rightarrow \pi^+ \pi^- \pi^0 \text{ decays} = (97.3 \pm 1.7)\%$$

$$CP\text{-even fraction in } D^0 \rightarrow \pi^+ \pi^- \pi^+ \pi^- \text{ decays} = (74.6 \pm 0.8)\%$$

$$CP\text{-even fraction in } D^0 \rightarrow \pi^+ \pi^- 2\pi^0 \text{ decays} = 0.68 \pm 0.08$$

$$CP\text{-even fraction in } D^0 \rightarrow 2\pi^+ 2\pi^- \pi^0 \text{ decays} = 0.44 \pm 0.10$$

$$CP\text{-even fraction in } D^0 \rightarrow \pi^+ \pi^- 3\pi^0 \text{ decays} = 0.52^{+0.34}_{-0.27}$$

$$CP\text{-even fraction in } D^0 \rightarrow 2\pi^+ 2\pi^- 2\pi^0 \text{ decays} = 0.79 \pm 0.26$$

$$CP\text{-even fraction in } D^0 \rightarrow K^+ K^- \pi^0 \text{ decays} = (73 \pm 6)\%$$

$$CP\text{-even fraction in } D^0 \rightarrow K^+ K^- \pi^+ \pi^- \text{ decays} = (74.1 \pm 3.0)\%$$

CP-violation decay-rate asymmetries (labeled by the D^0 decay)

$$A_{CP}(K^+ K^-) = (4 \pm 5) \times 10^{-4}$$

$$A_{CP}(2K_S^0) = (-1.1 \pm 1.9)\% \quad (S = 2.0)$$

$$A_{CP}(\pi^+ \pi^-) = (0.13 \pm 0.14)\%$$

$$A_{CP}(\pi^0 \pi^0) = (0.0 \pm 0.6)\%$$

$$A_{CP}(\rho \gamma) = (6 \pm 15) \times 10^{-2}$$

$$A_{CP}(\phi \gamma) = (-9 \pm 7) \times 10^{-2}$$

$$A_{CP}(K^*(892)^0 \gamma) = (-0.3 \pm 2.0) \times 10^{-2}$$

$$A_{CP}(\pi^+ \pi^- \pi^0) = (0.4 \pm 0.4)\%$$

$$A_{CP}(\eta \pi^+ \pi^-) \text{ in } D^0, \bar{D}^0 \rightarrow \eta \pi^+ \pi^- = (0.9 \pm 1.3) \times 10^{-2}$$

$$A_{CP}(\rho(770)^+ \pi^- \rightarrow \pi^+ \pi^- \pi^0) = (1.2 \pm 0.9)\% \text{ [i]}$$

$$A_{CP}(\rho(770)^0 \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (-3.1 \pm 3.0)\% \text{ [i]}$$

$$A_{CP}(\rho(770)^- \pi^+ \rightarrow \pi^+ \pi^- \pi^0) = (-1.0 \pm 1.7)\% \text{ [i]}$$

$$A_{CP}(\rho(1450)^+ \pi^- \rightarrow \pi^+ \pi^- \pi^0) = (0 \pm 70)\% \text{ [i]}$$

$$A_{CP}(\rho(1450)^0 \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (-20 \pm 40)\% \text{ [i]}$$

$$A_{CP}(\rho(1450)^- \pi^+ \rightarrow \pi^+ \pi^- \pi^0) = (6 \pm 9)\% \text{ [i]}$$

$$A_{CP}(\rho(1700)^+ \pi^- \rightarrow \pi^+ \pi^- \pi^0) = (-5 \pm 14)\% \text{ [i]}$$

$$A_{CP}(\rho(1700)^0 \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (13 \pm 9)\% \text{ [i]}$$

$$A_{CP}(\rho(1700)^- \pi^+ \rightarrow \pi^+ \pi^- \pi^0) = (8 \pm 11)\% \text{ [i]}$$

$$A_{CP}(f_0(980) \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (0 \pm 35)\% \text{ [i]}$$

$$A_{CP}(f_0(1370) \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (25 \pm 18)\% \text{ [i]}$$

$$A_{CP}(f_0(1500) \pi^0 \rightarrow \pi^+ \pi^- \pi^0) = (0 \pm 18)\% \text{ [i]}$$

CLUMP=M

NODE=S032D;DTYPE=D;CLUMP=M;OUR EVAL;→ UNCHECKED ←

NODE=S032DT;DTYPE=Y;OUR EVAL;→ UNCHECKED ←

NODE=S032QP;DTYPE=Y;OUR EVAL;→ UNCHECKED ←

NODE=S032AG;DTYPE=Y;OUR EVAL;→ UNCHECKED ←

NODE=S032D03;DTYPE=Y

NODE=S032DKP;DTYPE=Y

NODE=S032CF1;DTYPE=Y

NODE=S032SP1;DTYPE=Y

NODE=S032CF2;DTYPE=Y

NODE=S032SP2;DTYPE=Y

NODE=S032A82;DTYPE=Y

NODE=S032CF3;DTYPE=Y

NODE=S032SP3;DTYPE=Y

NODE=S032CF4;DTYPE=Y

NODE=S032SP4;DTYPE=Y

CLUMP=N

NODE=S032CF7;DTYPE=Y;CLUMP=N

NODE=S032EFP;DTYPE=Y;CLUMP=N

NODE=S032EFL;DTYPE=Y;CLUMP=N

NODE=S032D48;DTYPE=Y;CLUMP=N

NODE=S032D50;DTYPE=Y;CLUMP=N

NODE=S032D49;DTYPE=Y;CLUMP=N

NODE=S032D51;DTYPE=Y;CLUMP=N

NODE=S032EFK;DTYPE=Y;CLUMP=N

NODE=S032A96;DTYPE=Y;CLUMP=N

CLUMP=V

NODE=S032A1;DTYPE=v;CLUMP=V

NODE=S032A8;DTYPE=v;CLUMP=V

NODE=S032A4;DTYPE=v;CLUMP=V

NODE=S032A7;DTYPE=v;CLUMP=V

NODE=S032A00;DTYPE=v;CLUMP=V

NODE=S032A83;DTYPE=v;CLUMP=V

NODE=S032A84;DTYPE=v;CLUMP=V

NODE=S032A12;DTYPE=v;CLUMP=V

NODE=S032D19;DTYPE=v;CLUMP=V

NODE=S032A25;DTYPE=v;CLUMP=V

NODE=S032A26;DTYPE=v;CLUMP=V

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NODE=S032A30;DTYPE=v;CLUMP=V

NODE=S032A31;DTYPE=v;CLUMP=V

NODE=S032A32;DTYPE=v;CLUMP=V

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NODE=S032A34;DTYPE=v;CLUMP=V

NODE=S032A35;DTYPE=v;CLUMP=V

NODE=S032A36;DTYPE=v;CLUMP=V

$$\begin{aligned}
A_{CP}(f_0(1710)\pi^0 \rightarrow \pi^+\pi^-\pi^0) &= (0 \pm 24)\% \text{ [i]} \\
A_{CP}(f_2(1270)\pi^0 \rightarrow \pi^+\pi^-\pi^0) &= (-4 \pm 6)\% \text{ [i]} \\
A_{CP}(\sigma(400)\pi^0 \rightarrow \pi^+\pi^-\pi^0) &= (6 \pm 8)\% \text{ [i]} \\
A_{CP}(\text{nonresonant } \pi^+\pi^-\pi^0) &= (-13 \pm 23)\% \text{ [i]} \\
A_{CP}(\pi^+\pi^-2\pi^0) \text{ in } D^0, \bar{D}^0 \rightarrow \pi^+\pi^-2\pi^0 &= (-2.5 \pm 2.0)\% \\
A_{CP}(a_1(1260)^+\pi^- \rightarrow 2\pi^+2\pi^-) &= (5 \pm 6)\% \\
A_{CP}(a_1(1260)^-\pi^+ \rightarrow 2\pi^+2\pi^-) &= (14 \pm 18)\% \\
A_{CP}(\pi(1300)^+\pi^- \rightarrow 2\pi^+2\pi^-) &= (-2 \pm 15)\% \\
A_{CP}(\pi(1300)^-\pi^+ \rightarrow 2\pi^+2\pi^-) &= (-6 \pm 30)\% \\
A_{CP}(a_1(1640)^+\pi^- \rightarrow 2\pi^+2\pi^-) &= (9 \pm 26)\% \\
A_{CP}(\pi_2(1670)^+\pi^- \rightarrow 2\pi^+2\pi^-) &= (7 \pm 18)\% \\
A_{CP}(\sigma f_0(1370) \rightarrow 2\pi^+2\pi^-) &= (-15 \pm 19)\% \\
A_{CP}(\sigma\rho(770)^0 \rightarrow 2\pi^+2\pi^-) &= (3 \pm 27)\% \\
A_{CP}(2\rho(770)^0 \rightarrow 2\pi^+2\pi^-) &= (-6 \pm 6)\% \\
A_{CP}(2f_2(1270) \rightarrow 2\pi^+2\pi^-) &= (-28 \pm 24)\% \\
A_{CP}(\pi^+\pi^-\pi^0\eta) \text{ in } D^0, \bar{D}^0 \rightarrow \pi^+\pi^-\pi^0\eta &= (-6 \pm 6) \times 10^{-2} \\
A_{CP}(K^+K^-\pi^0) &= (-1.0 \pm 1.7)\% \\
A_{CP}(K^*(892)^+K^- \rightarrow K^+K^-\pi^0) &= (-0.9 \pm 1.3)\% \text{ [i]} \\
A_{CP}(K^*(1410)^+K^- \rightarrow K^+K^-\pi^0) &= (-21 \pm 24)\% \text{ [i]} \\
A_{CP}((K^+\pi^0)_{S\text{-wave}}K^- \rightarrow K^+K^-\pi^0) &= (7 \pm 15)\% \text{ [i]} \\
A_{CP}(\phi(1020)\pi^0 \rightarrow K^+K^-\pi^0) &= (1.1 \pm 2.2)\% \text{ [i]} \\
A_{CP}(f_0(980)\pi^0 \rightarrow K^+K^-\pi^0) &= (-3 \pm 19)\% \text{ [i]} \\
A_{CP}(a_0(980)^0\pi^0 \rightarrow K^+K^-\pi^0) &= (-5 \pm 16)\% \text{ [i]} \\
A_{CP}(f'_2(1525)\pi^0 \rightarrow K^+K^-\pi^0) &= (0 \pm 160)\% \text{ [i]} \\
A_{CP}(K^*(892)^-K^+ \rightarrow K^+K^-\pi^0) &= (-5 \pm 4)\% \text{ [i]} \\
A_{CP}(K^*(1410)^-K^+ \rightarrow K^+K^-\pi^0) &= (-17 \pm 29)\% \text{ [i]} \\
A_{CP}((K^-\pi^0)_{S\text{-wave}}K^+ \rightarrow K^+K^-\pi^0) &= (-10 \pm 40)\% \text{ [i]} \\
A_{CP}(K^+K^-\eta) \text{ in } D^0, \bar{D}^0 \rightarrow K^+K^-\eta &= (-1.4 \pm 3.5) \times 10^{-2} \\
A_{CP}(\phi(1020)\eta \rightarrow K^+K^-\eta) \text{ in } D^0, \bar{D}^0 \rightarrow \phi(1020)\eta &= (-2 \pm 4) \times 10^{-2} \\
A_{CP}(K_S^0\pi^0) &= (-0.20 \pm 0.17)\% \\
A_{CP}(K_S^0\eta) &= (0.5 \pm 0.5)\% \\
A_{CP}(K_S^0\eta') &= (1.0 \pm 0.7)\% \\
A_{CP}(K_S^0\phi) &= (-3 \pm 9)\% \\
A_{CP}(K^-\pi^+) &= (0.2 \pm 0.5)\% \\
A_{CP}(K^+\pi^-) &= (-0.9 \pm 1.4)\% \\
A_{CP}(D_{CP}(\pm 1) \rightarrow K^\mp\pi^\pm) &= (13.1 \pm 1.0)\% \\
A_{CP}(K^-\pi^+\pi^0) &= (0.1 \pm 0.5)\% \\
A_{CP}(K^+\pi^-\pi^0) &= (0 \pm 5)\% \\
A_{CP}(K_S^0\pi^+\pi^-) &= (-0.1 \pm 0.8)\% \\
A_{CP}(K^\mp\pi^\pm\eta) \text{ in } D^0, \bar{D}^0 \rightarrow K^\mp\pi^\pm\eta &= (-1.9 \pm 1.6) \times 10^{-2} \\
A_{CP}(K_S^0\pi^0\eta) \text{ in } D^0, \bar{D}^0 \rightarrow K_S^0\pi^0\eta &= (-3.9 \pm 3.3) \times 10^{-2} \\
A_{CP}(K^\mp\pi^\pm\pi^0\eta) \text{ in } D^0, \bar{D}^0 \rightarrow K^\mp\pi^\pm\pi^0\eta &= (-8 \pm 5) \times 10^{-2} \\
A_{CP}(K^*(892)^-\pi^+ \rightarrow K_S^0\pi^+\pi^-) &= (0.4 \pm 0.5)\% \\
A_{CP}(K^*(892)^+\pi^- \rightarrow K_S^0\pi^+\pi^-) &= (1 \pm 6)\% \\
A_{CP}(\bar{K}^0\rho^0 \rightarrow K_S^0\pi^+\pi^-) &= (-0.1 \pm 0.5)\% \\
A_{CP}(\bar{K}^0\omega \rightarrow K_S^0\pi^+\pi^-) &= (-13 \pm 7)\% \\
A_{CP}(\bar{K}^0 f_0(980) \rightarrow K_S^0\pi^+\pi^-) &= (-0.4 \pm 2.7)\% \\
A_{CP}(\bar{K}^0 f_2(1270) \rightarrow K_S^0\pi^+\pi^-) &= (-4 \pm 5)\% \\
A_{CP}(\bar{K}^0 f_0(1370) \rightarrow K_S^0\pi^+\pi^-) &= (-1 \pm 9)\% \\
A_{CP}(\bar{K}^0\rho^0(1450) \rightarrow K_S^0\pi^+\pi^-) &= (-4 \pm 10)\% \\
A_{CP}(\bar{K}^0 f_0(600) \rightarrow K_S^0\pi^+\pi^-) &= (-3 \pm 5)\% \\
A_{CP}(K^*(1410)^-\pi^+ \rightarrow K_S^0\pi^+\pi^-) &= (-2 \pm 9)\% \\
A_{CP}(K_0^*(1430)^-\pi^+ \rightarrow K_S^0\pi^+\pi^-) &= (4 \pm 4)\% \\
A_{CP}(K_0^*(1430)^+\pi^- \rightarrow K_S^0\pi^+\pi^-) &= (12 \pm 15)\% \\
A_{CP}(K_2^*(1430)^-\pi^+ \rightarrow K_S^0\pi^+\pi^-) &= (3 \pm 6)\%
\end{aligned}$$

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NODE=S032A20;DTYPE=v;CLUMP=V
NODE=S032A58;DTYPE=v;CLUMP=V
NODE=S032A21;DTYPE=v;CLUMP=V

$$A_{CP}(K_2^*(1430)^+ \pi^- \rightarrow K_S^0 \pi^+ \pi^-) = (-10 \pm 32)\%$$

$$A_{CP}(K^- \pi^+ \pi^+ \pi^-) = (0.2 \pm 0.5)\%$$

$$A_{CP}(K^+ \pi^- \pi^+ \pi^-) = (-2 \pm 4)\%$$

$$A_{CP}(K^+ K^- \pi^+ \pi^-) = (1.3 \pm 1.7)\%$$

$$A_{CP}(2K_S^0 \pi^+ \pi^-) \text{ in } D^0, \bar{D}^0 \rightarrow 2K_S^0 \pi^+ \pi^- = (-2.5 \pm 1.4) \times 10^{-2}$$

$$A_{CP}(K_1^*(1270)^+ K^- \rightarrow K^+ K^- \pi^+ \pi^-) = (-2.3 \pm 1.7)\%$$

$$A_{CP}(K_1^*(1270)^+ K^- \rightarrow K^{*0} \pi^+ K^-) = (-1 \pm 10)\%$$

$$A_{CP}(K_1^*(1270)^- K^+ \rightarrow \bar{K}^{*0} \pi^- K^+) = (-10 \pm 32)\%$$

$$A_{CP}(K_1^*(1270)^- K^+ \rightarrow K^+ K^- \pi^+ \pi^-) = (1.7 \pm 3.5)\%$$

$$A_{CP}(K_1^*(1270)^+ K^- \rightarrow \rho^0 K^+ K^-) = (-7 \pm 17)\%$$

$$A_{CP}(K_1^*(1270)^- K^+ \rightarrow \rho^0 K^- K^+) = (10 \pm 13)\%$$

$$A_{CP}(K_1(1400)^+ K^- \rightarrow K^+ K^- \pi^+ \pi^-) = (-4.4 \pm 2.1)\%$$

$$A_{CP}(K^*(1410)^+ K^- \rightarrow K^{*0} \pi^+ K^-) = (-20 \pm 17)\%$$

$$A_{CP}(K^*(1410)^- K^+ \rightarrow \bar{K}^{*0} \pi^- K^+) = (-1 \pm 14)\%$$

$$A_{CP}(K^*(1680)^+ K^- \rightarrow K^+ K^- \pi^+ \pi^-) = (-17 \pm 29)\%$$

$$A_{CP}(K^{*0} \bar{K}^{*0}) \text{ in } D^0, \bar{D}^0 \rightarrow K^{*0} \bar{K}^{*0} = (-5 \pm 14)\%$$

$$A_{CP}(K^{*0} \bar{K}^{*0} \text{ S-wave}) = (-3.9 \pm 2.2)\%$$

$$A_{CP}(\phi \rho^0) \text{ in } D^0, \bar{D}^0 \rightarrow \phi \rho^0 = (1 \pm 9)\%$$

$$A_{CP}(\phi \rho^0 \text{ S-wave}) = (-3 \pm 5)\%$$

$$A_{CP}(\phi \rho^0 \text{ D-wave}) = (-37 \pm 19)\%$$

$$A_{CP}(\phi(\pi^+ \pi^-)_{\text{S-wave}}) = (6 \pm 6)\%$$

$$A_{CP}(K^*(892)^0 (K^- \pi^+)_{\text{S-wave}}) = (-10 \pm 40)\%$$

$$A_{CP}(K^+ K^- \pi^+ \pi^- \text{ non-resonant}) = (8 \pm 20)\%$$

$$A_{CP}((K^- \pi^+)_{\text{P-wave}} (K^+ \pi^-)_{\text{S-wave}}) = (3 \pm 11)\%$$

$$A_{CP}(K^+ K^- \mu^+ \mu^-) \text{ in } D^0, \bar{D}^0 \rightarrow K^+ K^- \mu^+ \mu^- = (-2 \pm 6)\%$$

$$A_{CP}(\pi^+ \pi^- \mu^+ \mu^-) \text{ in } D^0, \bar{D}^0 \rightarrow \pi^+ \pi^- \mu^+ \mu^- = (2.9 \pm 2.1)\%$$

CP-violation asymmetry difference

$$\Delta A_{CP} = A_{CP}(K^+ K^-) - A_{CP}(\pi^+ \pi^-) = (-0.154 \pm 0.029)\%$$

χ^2 tests of CP-violation (CPV) p-values

$$\text{Local CPV in } D^0, \bar{D}^0 \rightarrow \pi^+ \pi^- \pi^0 = 10.6\%$$

$$\text{Local CPV in } D^0, \bar{D}^0 \rightarrow \pi^+ \pi^- \pi^+ \pi^- = (0.6 \pm 0.2)\%$$

$$\text{Local CPV in } D^0, \bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^- = 96\%$$

$$\text{Local CPV in } D^0, \bar{D}^0 \rightarrow K^+ K^- \pi^0 = 16.6\%$$

$$\text{Local CPV in } D^0, \bar{D}^0 \rightarrow K^+ K^- \pi^+ \pi^- = 9.1\%$$

T-violation decay-rate asymmetry

$$A_T(K^+ K^- \pi^+ \pi^-) = (2.9 \pm 2.2) \times 10^{-3} [b]$$

$$A_{T\text{viol}}(2K_S^0 \pi^+ \pi^-) \text{ in } D^0, \bar{D}^0 \rightarrow 2K_S^0 \pi^+ \pi^- = (-1.9 \pm 1.4) \times 10^{-2}$$

$$A_{T\text{viol}}(K_S^0 \pi^+ \pi^- \pi^0) \text{ in } D^0, \bar{D}^0 \rightarrow K_S^0 \pi^+ \pi^- \pi^0 = (-0.3_{-1.6}^{+1.4}) \times 10^{-3}$$

CPT-violation decay-rate asymmetry

Form factors

$$r_V \equiv V(0)/A_1(0) \text{ in } D^0 \rightarrow K^*(892)^- \ell^+ \nu_\ell = 1.43 \pm 0.06$$

$$r_2 \equiv A_2(0)/A_1(0) \text{ in } D^0 \rightarrow K^*(892)^- \ell^+ \nu_\ell = 0.72 \pm 0.04$$

$$r_V \equiv V(0)/A_1(0) \text{ in } D^0 \rightarrow \rho^- \ell^+ \nu_\ell = 1.55 \pm 0.09$$

$$r_2 \equiv A_2(0)/A_1(0) \text{ in } D^0 \rightarrow \rho^- \ell^+ \nu_\ell = 0.82 \pm 0.06$$

$$f_+(0) \text{ in } D^0 \rightarrow K^- \ell^+ \nu_\ell = 0.736 \pm 0.004$$

$$f_+(0) |V_{cs}| \text{ in } D^0 \rightarrow K^- \ell^+ \nu_\ell = 0.7176 \pm 0.0018$$

$$r_1 \equiv a_1/a_0 \text{ in } D^0 \rightarrow K^- \ell^+ \nu_\ell = -2.40 \pm 0.16$$

$$r_2 \equiv a_2/a_0 \text{ in } D^0 \rightarrow K^- \ell^+ \nu_\ell = 5 \pm 4$$

$$f_+(0) \text{ in } D^0 \rightarrow \pi^- \ell^+ \nu_\ell = 0.637 \pm 0.009$$

$$f_+(0) |V_{cd}| \text{ in } D^0 \rightarrow \pi^- \ell^+ \nu_\ell = 0.1436 \pm 0.0026 \quad (S = 1.5)$$

$$r_1 \equiv a_1/a_0 \text{ in } D^0 \rightarrow \pi^- \ell^+ \nu_\ell = -1.97 \pm 0.28 \quad (S = 1.4)$$

$$r_2 \equiv a_1/a_0 \text{ in } D^0 \rightarrow \pi^- \ell^+ \nu_\ell = -0.2 \pm 2.2 \quad (S = 1.7)$$

NODE=S032A59;DTYPE=v;CLUMP=V
 NODE=S032A24;DTYPE=v;CLUMP=V
 NODE=S032A11;DTYPE=v;CLUMP=V
 NODE=S032CPK;DTYPE=v;CLUMP=V
 NODE=S032D54;DTYPE=v;CLUMP=V

NODE=S032A97;DTYPE=v;CLUMP=V
 NODE=S032A60;DTYPE=v;CLUMP=V
 NODE=S032A61;DTYPE=v;CLUMP=V
 NODE=S032A98;DTYPE=v;CLUMP=V
 NODE=S032A62;DTYPE=v;CLUMP=V
 NODE=S032A63;DTYPE=v;CLUMP=V
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 NODE=S032C07;DTYPE=v;CLUMP=V
 NODE=S032A66;DTYPE=v;CLUMP=V
 NODE=S032C08;DTYPE=v;CLUMP=V
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 NODE=S032A69;DTYPE=v;CLUMP=V
 NODE=S032C09;DTYPE=v;CLUMP=V
 NODE=S032C75;DTYPE=v;CLUMP=V
 NODE=S032A70;DTYPE=v;CLUMP=V
 NODE=S032C77;DTYPE=v;CLUMP=V
 NODE=S032C78;DTYPE=v;CLUMP=V

CLUMP=K

NODE=S032DCP;DTYPE=v;CLUMP=K

CLUMP=L

NODE=S032L01;DTYPE=v;CLUMP=L;OUR
 EVAL;→ UNCHECKED ←
 NODE=S032L02;DTYPE=v;CLUMP=L
 NODE=S032L03;DTYPE=v;CLUMP=L
 NODE=S032L04;DTYPE=v;CLUMP=L
 NODE=S032L05;DTYPE=v;CLUMP=L

CLUMP=T

NODE=S032TV0;DTYPE=t;CLUMP=T
 NODE=S032D55;DTYPE=t;CLUMP=T

NODE=S032C76;DTYPE=t

CLUMP=E

CLUMP=F

NODE=S032FRV;DTYPE=f;CLUMP=F
 NODE=S032FR2;DTYPE=f;CLUMP=F
 NODE=S032RRV;DTYPE=f;CLUMP=F
 NODE=S032RR2;DTYPE=f;CLUMP=F
 NODE=S032FK3;DTYPE=f;CLUMP=F
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 NODE=S032FK1;DTYPE=f;CLUMP=F
 NODE=S032FK2;DTYPE=f;CLUMP=F
 NODE=S032FP3;DTYPE=f;CLUMP=F
 NODE=S032FP0;DTYPE=f;CLUMP=F
 NODE=S032FP1;DTYPE=f;CLUMP=F
 NODE=S032FP2;DTYPE=f;CLUMP=F

Most decay modes (other than the semileptonic modes) that involve a neutral K meson are now given as K_S^0 modes, not as \bar{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 $2\Gamma(K_S^0) = \Gamma(\bar{K}^0)$.

NODE=S032235;NODE=S032

D⁰ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level(MeV/c)	p	
Topological modes				
0-prongs	[j] (15 ± 6)%	–	–	NODE=S032;CLUMP=P DESIG=332
2-prongs	(71 ± 6)%	–	–	DESIG=333
4-prongs	[k] (14.6 ± 0.5)%	–	–	DESIG=334
6-prongs	[l] (6.5 ± 1.3) × 10 ⁻⁴	–	–	DESIG=335
Inclusive modes				
e^+ anything	[n] (6.49 ± 0.11)%	–	–	NODE=S032;CLUMP=A DESIG=10
μ^+ anything	(6.8 ± 0.6)%	–	–	DESIG=27
K^- anything	(54.7 ± 2.8)%	S=1.3	–	DESIG=11
K_S^0 anything	(20.75 ± 0.23)%	–	–	DESIG=13
K^+ anything	(3.4 ± 0.4)%	–	–	DESIG=12
$K^*(892)^-$ anything	(15 ± 9)%	–	–	DESIG=340
$\bar{K}^*(892)^0$ anything	(9 ± 4)%	–	–	DESIG=312
$K^*(892)^+$ anything	< 3.6 %	CL=90%	–	DESIG=341
$K^*(892)^0$ anything	(2.8 ± 1.3)%	–	–	DESIG=313
η anything	(9.5 ± 0.9)%	–	–	DESIG=21
η' anything	(2.48 ± 0.27)%	–	–	DESIG=342
ϕ anything	(1.08 ± 0.04)%	–	–	DESIG=249
$\pi^+\pi^+\pi^-$ anything	(17.60 ± 0.25)%	–	–	DESIG=589
invisibles	< 9.4 × 10 ⁻⁵	CL=90%	–	DESIG=433
Semileptonic modes				
$K^- e^+ \nu_e$	(3.538 ± 0.017)%	S=1.1	867	NODE=S032;CLUMP=B DESIG=46
$K^- \mu^+ \nu_\mu$	(3.418 ± 0.019)%		864	DESIG=77
$K^*(892)^- e^+ \nu_e$	(2.16 ± 0.16)%		719	DESIG=129
$K^*(892)^- \mu^+ \nu_\mu$	(2.06 ± 0.05)%		714	DESIG=307
$K^- \pi^0 e^+ \nu_e$	(1.6 ± 1.3 / - 0.5)%		861	DESIG=127
$\bar{K}^0 \pi^- e^+ \nu_e$	(1.44 ± 0.04)%		860	DESIG=128
$(\bar{K}^0 \pi^-)_{S\text{-wave}} e^+ \nu_e$	(7.9 ± 1.7) × 10 ⁻⁴		860	DESIG=550
$K^- \pi^0 \mu^+ \nu_\mu$	(7.30 ± 0.17) × 10 ⁻³		849	DESIG=602
$(K^- \pi^0)_{S\text{-wave}} \mu^+ \nu_\mu$	(4.21 ± 0.35) × 10 ⁻⁴		849	DESIG=600
$K^- \eta e^+ \nu_e$	(8 ± 4) × 10 ⁻⁵		773	DESIG=601
$K^- \pi^+ \pi^- e^+ \nu_e$	(2.8 ± 1.4 / - 1.1) × 10 ⁻⁴		843	DESIG=360
$K_1(1270)^- e^+ \nu_e$	(1.01 ± 0.18) × 10 ⁻³		511	DESIG=361
$\bar{K}_1(1270)^- e^+ \nu_e, \bar{K}_1^- \rightarrow K_S^0 \pi^- \pi^0$	(1.7 ± 0.6 / - 0.5) × 10 ⁻⁴		–	DESIG=599
$K^- \pi^+ \pi^- \mu^+ \nu_\mu$	< 1.3 × 10 ⁻³	CL=90%	821	DESIG=183
$(\bar{K}^*(892) \pi^-) \mu^+ \nu_\mu$	< 1.5 × 10 ⁻³	CL=90%	692	DESIG=184
$\pi^- e^+ \nu_e$	(2.91 ± 0.04) × 10 ⁻³		927	DESIG=49
$\pi^- \mu^+ \nu_\mu$	(2.67 ± 0.12) × 10 ⁻³	S=1.3	924	DESIG=308
$\pi^- \pi^0 e^+ \nu_e$	(1.45 ± 0.07) × 10 ⁻³		922	DESIG=549
$\rho^- e^+ \nu_e$	(1.46 ± 0.08) × 10 ⁻³	S=2.0	771	DESIG=320
$\rho^- \mu^+ \nu_\mu$	(1.35 ± 0.13) × 10 ⁻³		767	DESIG=570
$a(980)^- e^+ \nu_e, a^- \rightarrow \eta \pi^-$	(1.33 ± 0.34 / - 0.30) × 10 ⁻⁴		–	DESIG=495
$K_S^0 K^- e^+ \nu_e$	< 2.13 × 10 ⁻⁵	CL=90%	790	DESIG=590
$b_1(1235)^- e^+ \nu_e, b_1^- \rightarrow \omega \pi^-$	< 1.12 × 10 ⁻⁴	CL=90%	–	DESIG=561

Hadronic modes with one \bar{K}

					NODE=S032;CLUMP=C
$K^- \pi^+$	(3.945 ± 0.030) %	S=1.2	861		DESIG=1
$K_S^0 \pi^0$	(1.240 ± 0.022) %		860		DESIG=9
$K_L^0 \pi^0$	(9.76 ± 0.32) × 10 ⁻³		860		DESIG=363
$K_L^0 \eta$	(4.34 ± 0.16) × 10 ⁻³		772		DESIG=579
$K_L^0 \eta'$	(8.12 ± 0.35) × 10 ⁻³	S=1.3	565		DESIG=581
$K_L^0 \omega$	(1.16 ± 0.04) %		670		DESIG=580
$K_S^0 \pi^+ \pi^-$	[c] (2.86 ± 0.16) %	S=1.1	842		DESIG=3
$K_S^0 \rho^0$	(6.4 $\begin{smallmatrix} + 0.6 \\ - 0.8 \end{smallmatrix}$) × 10 ⁻³		674		DESIG=17
$K_S^0 \omega, \omega \rightarrow \pi^+ \pi^-$	(2.1 ± 0.6) × 10 ⁻⁴		670		DESIG=285
$K_S^0 (\pi^+ \pi^-)_{S-wave}$	(3.4 ± 0.8) × 10 ⁻³		842		DESIG=384
$K_S^0 f_0(980), f_0 \rightarrow \pi^+ \pi^-$	(1.23 $\begin{smallmatrix} + 0.40 \\ - 0.23 \end{smallmatrix}$) × 10 ⁻³		549		DESIG=199
$K_S^0 f_0(1370), f_0 \rightarrow \pi^+ \pi^-$	(2.8 $\begin{smallmatrix} + 0.9 \\ - 1.3 \end{smallmatrix}$) × 10 ⁻³		†		DESIG=201
$K_S^0 f_2(1270), f_2 \rightarrow \pi^+ \pi^-$	(9 $\begin{smallmatrix} + 10 \\ - 6 \end{smallmatrix}$) × 10 ⁻⁵		262		DESIG=200
$K^*(892)^- \pi^+, K^{*-} \rightarrow K_S^0 \pi^-$	(1.68 $\begin{smallmatrix} + 0.14 \\ - 0.16 \end{smallmatrix}$) %		711		DESIG=81
$K_0^*(1430)^- \pi^+, K_0^{*-} \rightarrow K_S^0 \pi^-$	(2.73 $\begin{smallmatrix} + 0.40 \\ - 0.32 \end{smallmatrix}$) × 10 ⁻³		378		DESIG=203
$K_2^*(1430)^- \pi^+, K_2^{*-} \rightarrow K_S^0 \pi^-$	(3.4 $\begin{smallmatrix} + 1.9 \\ - 1.0 \end{smallmatrix}$) × 10 ⁻⁴		367		DESIG=286
$K^*(1680)^- \pi^+, K^{*-} \rightarrow K_S^0 \pi^-$	(4 ± 4) × 10 ⁻⁴		46		DESIG=279
$K^*(892)^+ \pi^-, K^{*+} \rightarrow K_S^0 \pi^+$	[o] (1.15 $\begin{smallmatrix} + 0.60 \\ - 0.34 \end{smallmatrix}$) × 10 ⁻⁴		711		DESIG=179
$K_0^*(1430)^+ \pi^-, K_0^{*+} \rightarrow K_S^0 \pi^+$	[o] < 1.4 × 10 ⁻⁵	CL=95%	-		DESIG=382
$K_2^*(1430)^+ \pi^-, K_2^{*+} \rightarrow K_S^0 \pi^+$	[o] < 3.4 × 10 ⁻⁵	CL=95%	-		DESIG=383
$K_S^0 \pi^+ \pi^-$ nonresonant	(2.6 $\begin{smallmatrix} + 6.0 \\ - 1.6 \end{smallmatrix}$) × 10 ⁻⁴		842		DESIG=33
$K^- \pi^+ \pi^0$	[c] (14.4 ± 0.6) %	S=2.2	844		DESIG=8
$K^- \rho^+$	(11.2 ± 0.7) %		676		DESIG=16
$K^- \rho(1700)^+, \rho^+ \rightarrow \pi^+ \pi^0$	(8.2 ± 1.8) × 10 ⁻³		†		DESIG=271
$K^*(892)^- \pi^+, K^*(892)^- \rightarrow K^- \pi^0$	(2.31 $\begin{smallmatrix} + 0.40 \\ - 0.20 \end{smallmatrix}$) %		711		DESIG=83
$\bar{K}^*(892)^0 \pi^0, \bar{K}^*(892)^0 \rightarrow K^- \pi^+$	(1.95 ± 0.25) %		711		DESIG=82
$K_0^*(1430)^- \pi^+, K_0^{*-} \rightarrow K^- \pi^0$	(4.8 ± 2.2) × 10 ⁻³		378		DESIG=272
$\bar{K}_0^*(1430)^0 \pi^0, \bar{K}_0^{*0} \rightarrow K^- \pi^+$	(5.9 $\begin{smallmatrix} + 5.0 \\ - 1.6 \end{smallmatrix}$) × 10 ⁻³		379		DESIG=273
$K^*(1680)^- \pi^+, K^{*-} \rightarrow K^- \pi^0$	(1.9 ± 0.7) × 10 ⁻³		46		DESIG=274
$K^- \pi^+ \pi^0$ nonresonant	(1.15 $\begin{smallmatrix} + 0.60 \\ - 0.20 \end{smallmatrix}$) %		844		DESIG=32
$K_S^0 2\pi^0$	(9.1 ± 1.1) × 10 ⁻³	S=2.2	843		DESIG=185
$K_L^0 \pi^0 \pi^0$	(1.26 ± 0.06) %		843		DESIG=588
$K_S^0 (2\pi^0)_{S-wave}$	(2.6 ± 0.7) × 10 ⁻³		-		DESIG=390
$\bar{K}^*(892)^0 \pi^0, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(6.0 ± 0.9) × 10 ⁻³		711		DESIG=202
$\bar{K}^*(1430)^0 \pi^0, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(4 ± 23) × 10 ⁻⁵		-		DESIG=391
$\bar{K}^*(1680)^0 \pi^0, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(1.0 ± 0.4) × 10 ⁻³		-		DESIG=392
$K_S^0 f_2(1270), f_2 \rightarrow 2\pi^0$	(2.3 ± 1.1) × 10 ⁻⁴		-		DESIG=393
$2K_S^0, \text{one } K_S^0 \rightarrow 2\pi^0$	(3.2 ± 1.1) × 10 ⁻⁴		-		DESIG=394

$K_S^0 3\pi^0$	(7.6 ± 0.4) × 10 ⁻³		815	DESIG=574
$K_S^- 2\pi^+ \pi^-$	[c] (8.22 ± 0.14) %	S=1.1	813	DESIG=2
$K_S^- \pi^+ \rho^0$ total	(6.86 ± 0.31) %		609	DESIG=116
$K_S^- \pi^+ \rho^0$ 3-body	(6.1 ± 1.6) × 10 ⁻³		609	DESIG=23
$\bar{K}^*(892)^0 \rho^0, \bar{K}^{*0} \rightarrow$	(1.01 ± 0.05) %		416	DESIG=86
$K_S^- \pi^+ \bar{K}^*(892)^0 \rho^0$ transverse,	(1.2 ± 0.4) %		417	DESIG=73
$\bar{K}^{*0} \rightarrow K_S^- \pi^+$				
$K_S^- a_1(1260)^+, a_1^+ \rightarrow$	(4.32 ± 0.32) %		327	DESIG=181
$\rho^0 \pi^+$				
$K_1(1270)^- \pi^+, K_1^- \rightarrow$	(3.9 ± 0.4) × 10 ⁻³		-	DESIG=475
$K_S^- \pi^+ \pi^-$ total				
$K_1(1270)^- \pi^+, K_1^- \rightarrow$	(6.6 ± 2.3) × 10 ⁻⁴		484	DESIG=182
$\bar{K}^*(892)^0 \pi^-, \bar{K}^{*0} \rightarrow$				
$K_S^- \pi^+$				
$K_S^- 2\pi^+ \pi^-$ nonresonant	(1.81 ± 0.07) %		813	DESIG=68
$K_S^0 \pi^+ \pi^- \pi^0$	[p] (5.3 ± 0.6) %		813	DESIG=143
$K_S^0 \eta, \eta \rightarrow \pi^+ \pi^- \pi^0$	(1.17 ± 0.03) × 10 ⁻³		772	DESIG=135;OUR EVAL;→ UNCHECKED ←
$K_S^0 \omega, \omega \rightarrow \pi^+ \pi^- \pi^0$	(9.9 ± 0.6) × 10 ⁻³		670	DESIG=110;OUR EVAL;→ UNCHECKED ←
$K_S^- \pi^+ 2\pi^0$	(8.86 ± 0.23) %		815	DESIG=20
$K_S^- \pi^+ 3\pi^0$	(9.5 ± 0.4) × 10 ⁻³		774	DESIG=575
$K_S^0 \pi^+ \pi^- 2\pi^0$	(1.27 ± 0.06) %		771	DESIG=576
$K_S^- 2\pi^+ \pi^- \pi^0$	(4.3 ± 0.4) %		771	DESIG=41
$\bar{K}^*(892)^0 \pi^+ \pi^- \pi^0, \bar{K}^{*0} \rightarrow$	(1.3 ± 0.6) %		643	DESIG=55
$\bar{K}^*(892)^0 \omega, \bar{K}^{*0} \rightarrow$	(6.5 ± 3.0) × 10 ⁻³		410	DESIG=207;OUR EVAL;→ UNCHECKED ←
$K_S^- \pi^+ \omega$	(3.39 ± 0.10) %		605	DESIG=197
$\bar{K}^*(892)^0 \omega$	(1.1 ± 0.5) %		410	DESIG=57
$K_S^0 \pi^0 \omega$	(8.5 ± 0.6) × 10 ⁻³		605	DESIG=572
$K_S^0 \eta \pi^0$	(1.01 ± 0.05) %		721	DESIG=292
$K_S^0 a_0(980), a_0 \rightarrow \eta \pi^0$	(1.20 ± 0.28) %		-	DESIG=293
$\bar{K}^*(892)^0 \eta, \bar{K}^{*0} \rightarrow K_S^0 \pi^0$	(2.9 ± 0.7) × 10 ⁻³		-	DESIG=294
$K_S^- \pi^+ \eta$	(1.88 ± 0.05) %	S=1.4	721	DESIG=553
$K^*(892)^0 \eta, K^{*0} \rightarrow K_S^- \pi^+$	(8.9 ± 0.8 - 0.6) × 10 ⁻³		-	DESIG=566
$a_0(980)^+ K^-, a_0^+ \rightarrow \eta \pi^+$	(7.4 ± 0.9 - 0.7) × 10 ⁻³		-	DESIG=567
$K_2^*(1980)^- \pi^+, K_2^{*-} \rightarrow$	(2.2 ± 1.7 - 1.9) × 10 ⁻⁴		-	DESIG=560
$K_S^- \pi^+ \pi^0 \eta$	(4.49 ± 0.27) × 10 ⁻³		656	DESIG=556
$K_S^0 \pi^+ \pi^- \eta$	(2.80 ± 0.21) × 10 ⁻³		651	DESIG=557
$K_S^0 2\pi^0 \eta$	(1.76 ± 0.26) × 10 ⁻³		656	DESIG=558
$K_S^0 2\pi^+ 2\pi^-$	(2.72 ± 0.29) × 10 ⁻³		768	DESIG=97
$K_S^0 \rho^0 \pi^+ \pi^-,$ no $K^*(892)^-$	(1.1 ± 0.7) × 10 ⁻³		-	DESIG=174
$K^*(892)^- 2\pi^+ \pi^-,$	(5 ± 8) × 10 ⁻⁴		642	DESIG=175
$K^*(892)^- \rightarrow K_S^0 \pi^-,$				
no ρ^0				
$K^*(892)^- \rho^0 \pi^+,$	(1.6 ± 0.6) × 10 ⁻³		230	DESIG=176
$K^*(892)^- \rightarrow K_S^0 \pi^-$				
$K_S^0 2\pi^+ 2\pi^-$ nonresonant	< 1.3 × 10 ⁻³	CL=90%	768	DESIG=177
$K_S^- 3\pi^+ 2\pi^-$	(2.2 ± 0.6) × 10 ⁻⁴		713	DESIG=288

Fractions of some of the following modes with resonances have already appeared above as submodes of particular charged-particle modes. These nine modes below are all corrected for unseen decays of the resonances.

CLUMP=D;NODE=S032

$K_S^0 \eta$	(5.08 ± 0.13) × 10 ⁻³		772	DESIG=65
$K_S^0 \omega$	(1.11 ± 0.06) %		670	DESIG=64
$K_S^0 \eta'(958)$	(9.51 ± 0.32) × 10 ⁻³		565	DESIG=187
$\bar{K}^*(892)^0 \pi^+ \pi^- \pi^0$	(1.9 ± 0.9) %		643	DESIG=56
$\bar{K}^*(892)^0 \eta$	(1.41 ± 0.12) %		583	DESIG=66
$K_S^- \pi^+ \eta'(958)$	(6.43 ± 0.34) × 10 ⁻³		479	DESIG=189
$K_S^0 \eta'(958) \pi^0$	(2.52 ± 0.27) × 10 ⁻³		479	DESIG=501
$\bar{K}^*(892)^0 \eta'(958)$	< 1.0 × 10 ⁻³	CL=90%	119	DESIG=190

Hadronic modes with three K's				NODE=S032;CLUMP=S
$K_S^0 K^+ K^-$	$(4.52 \pm 0.29) \times 10^{-3}$	544		DESIG=31
$K_S^0 a_0(980)^0, a_0^0 \rightarrow K^+ K^-$	$(3.0 \pm 0.4) \times 10^{-3}$	-		DESIG=321
$K^- a_0(980)^+, a_0^+ \rightarrow$	$(6.1 \pm 1.8) \times 10^{-4}$	-		DESIG=322
$K^+ K_S^0$				
$K^+ a_0(980)^-, a_0^- \rightarrow$	$< 1.1 \times 10^{-4}$	CL=95%	-	DESIG=323
$K^- K_S^0$				
$K_S^0 f_0(980), f_0 \rightarrow K^+ K^-$	$< 9 \times 10^{-5}$	CL=95%	-	DESIG=324
$K_S^0 \phi, \phi \rightarrow K^+ K^-$	$(2.08 \pm 0.14) \times 10^{-3}$	520		DESIG=114
$K_S^0 \phi$	$(4.07 \pm 0.23) \times 10^{-3}$	521		DESIG=578
$K_S^0 f_0(1370), f_0 \rightarrow K^+ K^-$	$(1.7 \pm 1.1) \times 10^{-4}$	-		DESIG=325
$3K_S^0$	$(7.6 \pm 0.7) \times 10^{-4}$	S=1.4	539	DESIG=58
$K^+ 2K^- \pi^+$	$(2.25 \pm 0.32) \times 10^{-4}$		434	DESIG=219
$K^+ K^- \bar{K}^*(892)^0, \bar{K}^{*0} \rightarrow$	$(4.5 \pm 1.8) \times 10^{-5}$		†	DESIG=283
$K^- \pi^+$				
$K^- \pi^+ \phi, \phi \rightarrow K^+ K^-$	$(4.0 \pm 1.7) \times 10^{-5}$	422		DESIG=275
$\phi \bar{K}^*(892)^0, \phi \rightarrow K^+ K^-,$	$(1.08 \pm 0.20) \times 10^{-4}$		†	DESIG=284
$\bar{K}^{*0} \rightarrow K^- \pi^+$				
$K^+ 2K^- \pi^+$ nonresonant	$(3.4 \pm 1.5) \times 10^{-5}$	434		DESIG=282
$2K_S^0 K^\pm \pi^\mp$	$(6.1 \pm 1.3) \times 10^{-4}$	427		DESIG=309

Pionic modes				NODE=S032;CLUMP=E
$\pi^+ \pi^-$	$(1.453 \pm 0.024) \times 10^{-3}$	S=1.4	922	DESIG=5
$2\pi^0$	$(8.26 \pm 0.25) \times 10^{-4}$		923	DESIG=173
$\pi^+ \pi^- \pi^0$	$(1.49 \pm 0.07) \%$	S=2.3	907	DESIG=29
$\rho^+ \pi^-$	$(1.01 \pm 0.05) \%$		764	DESIG=326
$\rho^0 \pi^0$	$(3.86 \pm 0.24) \times 10^{-3}$		764	DESIG=327
$\rho^- \pi^+$	$(5.15 \pm 0.26) \times 10^{-3}$		764	DESIG=328
$\rho(1450)^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$(1.6 \pm 2.1) \times 10^{-5}$		-	DESIG=367
$\rho(1450)^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$(4.5 \pm 2.0) \times 10^{-5}$		-	DESIG=368
$\rho(1450)^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$(2.7 \pm 0.4) \times 10^{-4}$		-	DESIG=369
$\rho(1700)^+ \pi^-, \rho^+ \rightarrow \pi^+ \pi^0$	$(6.1 \pm 1.5) \times 10^{-4}$		-	DESIG=370
$\rho(1700)^0 \pi^0, \rho^0 \rightarrow \pi^+ \pi^-$	$(7.4 \pm 1.8) \times 10^{-4}$		-	DESIG=371
$\rho(1700)^- \pi^+, \rho^- \rightarrow \pi^- \pi^0$	$(4.8 \pm 1.1) \times 10^{-4}$		-	DESIG=372
$f_0(980) \pi^0, f_0 \rightarrow \pi^+ \pi^-$	$(3.7 \pm 0.9) \times 10^{-5}$		-	DESIG=330
$f_0(500) \pi^0, f_0 \rightarrow \pi^+ \pi^-$	$(1.22 \pm 0.22) \times 10^{-4}$		-	DESIG=329
$f_0(1370) \pi^0, f_0 \rightarrow \pi^+ \pi^-$	$(5.5 \pm 2.1) \times 10^{-5}$		-	DESIG=373
$f_0(1500) \pi^0, f_0 \rightarrow \pi^+ \pi^-$	$(5.8 \pm 1.6) \times 10^{-5}$		-	DESIG=374
$f_0(1710) \pi^0, f_0 \rightarrow \pi^+ \pi^-$	$(4.6 \pm 1.6) \times 10^{-5}$		-	DESIG=375
$f_2(1270) \pi^0, f_2 \rightarrow \pi^+ \pi^-$	$(1.96 \pm 0.21) \times 10^{-4}$		-	DESIG=376
$\pi^+ \pi^- \pi^0$ nonresonant	$(1.3 \pm 0.4) \times 10^{-4}$		907	DESIG=377
$3\pi^0$	$(2.0 \pm 0.5) \times 10^{-4}$		908	DESIG=314
$2\pi^+ 2\pi^-$	$(7.55 \pm 0.20) \times 10^{-3}$		880	DESIG=18
$a_1(1260)^+ \pi^-, a_1^+ \rightarrow$	$(4.53 \pm 0.31) \times 10^{-3}$		-	DESIG=348
$2\pi^+ \pi^-$ total				
$a_1(1260)^+ \pi^-, a_1^+ \rightarrow$	$(3.13 \pm 0.21) \times 10^{-3}$		-	DESIG=349
$\rho^0 \pi^+$ S-wave				
$a_1(1260)^+ \pi^-, a_1^+ \rightarrow$	$(1.9 \pm 0.5) \times 10^{-4}$		-	DESIG=350
$\rho^0 \pi^+$ D-wave				
$a_1(1260)^+ \pi^-, a_1^+ \rightarrow$	$(6.4 \pm 0.7) \times 10^{-4}$		-	DESIG=351
$\sigma \pi^+$				
$a_1(1260)^- \pi^+, a_1^- \rightarrow$	$(2.3 \pm 0.9) \times 10^{-4}$		-	DESIG=445
$\rho^0 \pi^-$ S-wave				
$a_1(1260)^- \pi^+, a_1^- \rightarrow \sigma \pi^-$	$(6.0 \pm 3.4) \times 10^{-5}$		-	DESIG=447
$\pi(1300)^+ \pi^-, \pi(1300)^+ \rightarrow$	$(5.1 \pm 2.7) \times 10^{-4}$		-	DESIG=448
$\sigma \pi^+$				
$\pi(1300)^- \pi^+, \pi(1300)^- \rightarrow$	$(2.3 \pm 2.2) \times 10^{-4}$		-	DESIG=449
$\sigma \pi^-$				
$a_1(1640)^+ \pi^-, a_1^+ \rightarrow$	$(3.2 \pm 1.6) \times 10^{-4}$		-	DESIG=450
$\rho^0 \pi^+$ D-wave				
$a_1(1640)^+ \pi^-, a_1^+ \rightarrow \sigma \pi^+$	$(1.8 \pm 1.4) \times 10^{-4}$		-	DESIG=451

$\pi_2(1670)^+\pi^-, \pi_2^+ \rightarrow$ $f_2(1270)^0\pi^+, f_2^0 \rightarrow$ $\pi^+\pi^-$	$(2.0 \pm 0.9) \times 10^{-4}$	—	DESIG=452
$\pi_2(1670)^+\pi^-, \pi_2^+ \rightarrow \sigma\pi^+$	$(2.6 \pm 1.0) \times 10^{-4}$	—	DESIG=453
$2\rho^0$ total	$(1.85 \pm 0.13) \times 10^{-3}$	518	DESIG=352
$2\rho^0$, parallel helicities	$(8.3 \pm 3.2) \times 10^{-5}$	—	DESIG=353
$2\rho^0$, perpendicular helicities	$(4.8 \pm 0.6) \times 10^{-4}$	—	DESIG=354
$2\rho^0$, longitudinal helicities	$(1.27 \pm 0.10) \times 10^{-3}$	—	DESIG=355
$2\rho(770)^0$, S-wave	$(1.8 \pm 1.3) \times 10^{-4}$	—	DESIG=456
$2\rho(770)^0$, P-wave	$(5.3 \pm 1.3) \times 10^{-4}$	—	DESIG=457
$2\rho(770)^0$, D-wave	$(6.2 \pm 3.0) \times 10^{-4}$	—	DESIG=458
Resonant $(\pi^+\pi^-)\pi^+\pi^-$	$(1.51 \pm 0.12) \times 10^{-3}$	—	DESIG=356
3-body total			
$\sigma\pi^+\pi^-$	$(6.2 \pm 0.9) \times 10^{-4}$	—	DESIG=357
$\sigma\rho(770)^0$	$(5.0 \pm 2.5) \times 10^{-4}$	—	DESIG=455
$f_0(980)\pi^+\pi^-, f_0 \rightarrow$ $\pi^+\pi^-$	$(1.8 \pm 0.5) \times 10^{-4}$	—	DESIG=358
$f_2(1270)\pi^+\pi^-, f_2 \rightarrow$ $\pi^+\pi^-$	$(3.7 \pm 0.6) \times 10^{-4}$	—	DESIG=359
$2f_2(1270), f_2 \rightarrow \pi^+\pi^-$	$(1.6 \pm 1.8) \times 10^{-4}$	—	DESIG=459
$f_0(1370)\sigma, f_0 \rightarrow$ $\pi^+\pi^-$	$(1.6 \pm 0.5) \times 10^{-3}$	—	DESIG=454
$\pi^+\pi^-2\pi^0$	$(1.002 \pm 0.031) \%$	882	DESIG=315
$4\pi^0$	$(7.6 \pm 1.1) \times 10^{-4}$	883	DESIG=583
$\eta\pi^0$	[q] $(6.3 \pm 0.6) \times 10^{-4}$	S=1.1 846	DESIG=316
$\omega\pi^0$	[q] $(1.17 \pm 0.35) \times 10^{-4}$	761	DESIG=317
$\omega\eta$	$(1.98 \pm 0.18) \times 10^{-3}$	S=1.1 648	DESIG=496
$2\pi^+2\pi^-\pi^0$	$(3.46 \pm 0.21) \times 10^{-3}$	844	DESIG=95
$\pi^+\pi^-3\pi^0$	$(1.53 \pm 0.21) \times 10^{-3}$	847	DESIG=586
$2\pi^+2\pi^-2\pi^0$	$(4.8 \pm 0.4) \times 10^{-3}$	798	DESIG=587
$\eta\pi^+\pi^-$	[q] $(1.16 \pm 0.07) \times 10^{-3}$	827	DESIG=318
$\rho(770)^0\eta, \rho^0 \rightarrow \pi^+\pi^-$	$(1.77 \pm 0.25) \times 10^{-4}$	—	DESIG=593
$a_0(980)^-\pi^+, a_0^- \rightarrow \pi^-\eta$	$(6.9 \pm 1.9) \times 10^{-5}$	—	DESIG=594
$a_0(980)^+\pi^-, a_0^+ \rightarrow \pi^+\eta$	$(5.1 \pm 0.8) \times 10^{-4}$	—	DESIG=595
$a_2(1320)^+\pi^-, a_2^+ \rightarrow \pi^+\eta$	$(2.4 \pm 1.4) \times 10^{-5}$	—	DESIG=596
$a_2(1700)^+\pi^-, a_2^+ \rightarrow \pi^+\eta$	$(6 \pm 4) \times 10^{-5}$	—	DESIG=597
$(\pi^+\pi^-)_{S-wave}\eta$	$(4.5 \pm 3.2) \times 10^{-5}$	827	DESIG=598
$\omega\pi^+\pi^-$	[q] $(1.33 \pm 0.20) \times 10^{-3}$	738	DESIG=319
$\omega\pi^0\pi^0$	$< 1.10 \times 10^{-3}$	CL=90% 740	DESIG=562
$\eta2\pi^0$	$(3.8 \pm 1.3) \times 10^{-4}$	829	DESIG=498
$\pi^+\pi^-\pi^0\eta$	$(3.23 \pm 0.22) \times 10^{-3}$	797	DESIG=559
$\eta3\pi^0$	$(2.36 \pm 0.28) \times 10^{-3}$	799	DESIG=584
$\eta2\pi^+2\pi^-$	$(6.0 \pm 1.2) \times 10^{-4}$	751	DESIG=585
$3\pi^+3\pi^-$	$(4.3 \pm 1.2) \times 10^{-4}$	795	DESIG=96
$\eta'(958)\pi^0$	$(9.2 \pm 1.0) \times 10^{-4}$	678	DESIG=378
$\eta'(958)\pi^+\pi^-$	$(4.5 \pm 1.7) \times 10^{-4}$	650	DESIG=379
2η	$(2.11 \pm 0.19) \times 10^{-3}$	S=2.3 754	DESIG=380
$2\eta\pi^0$	$(7.3 \pm 2.2) \times 10^{-4}$	699	DESIG=499
$2\eta\pi^+\pi^-$	$(8.5 \pm 1.4) \times 10^{-4}$	623	DESIG=582
3η	$< 1.3 \times 10^{-4}$	CL=90% 421	DESIG=500
$\eta\eta'(958)$	$(1.01 \pm 0.19) \times 10^{-3}$	537	DESIG=381

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

					NODE=S032;CLUMP=F
$K^+ K^-$	$(4.08 \pm 0.06) \times 10^{-3}$	S=1.6	791		DESIG=7
$2K_S^0$	$(1.41 \pm 0.05) \times 10^{-4}$	S=1.1	789		DESIG=35
$K_S^0 K^- \pi^+$	$(3.4 \pm 0.5) \times 10^{-3}$	S=1.1	739		DESIG=93
$\bar{K}^*(892)^0 K_S^0, \bar{K}^{*0} \rightarrow$ $K^- \pi^+$	$(8.3 \pm 1.6) \times 10^{-5}$		608		DESIG=91
$K^*(892)^+ K^-, K^{*+} \rightarrow$ $K_S^0 \pi^+$	$(1.92 \pm 0.30) \times 10^{-3}$		-		DESIG=412
$\bar{K}^*(1410)^0 K_S^0, \bar{K}^{*0} \rightarrow$ $K^- \pi^+$	$(1.3 \pm 1.9) \times 10^{-4}$		-		DESIG=417
$K^*(1410)^+ K^-, K^{*+} \rightarrow$ $K_S^0 \pi^+$	$(3.2 \pm 1.9) \times 10^{-4}$		-		DESIG=414
$(K^- \pi^+)_{S\text{-wave}} K_S^0$	$(6.1 \pm 2.9) \times 10^{-4}$		739		DESIG=420
$(K_S^0 \pi^+)_{S\text{-wave}} K^-$	$(4.0 \pm 1.0) \times 10^{-4}$		739		DESIG=419
$a_0(980)^- \pi^+, a_0^- \rightarrow K_S^0 K^-$	$(1.4 \pm 1.4) \times 10^{-4}$		-		DESIG=423
$a_0(1450)^- \pi^+, a_0^- \rightarrow$ $K_S^0 K^-$	$(2.5 \pm 2.0) \times 10^{-5}$		-		DESIG=424
$a_2(1320)^- \pi^+, a_2^- \rightarrow$ $K_S^0 K^-$	$(5 \pm 5) \times 10^{-6}$		-		DESIG=429
$\rho(1450)^- \pi^+, \rho^- \rightarrow K_S^0 K^-$	$(4.7 \pm 2.6) \times 10^{-5}$		-		DESIG=425
$K_S^0 K^+ \pi^-$	$(2.21 \pm 0.34) \times 10^{-3}$	S=1.1	739		DESIG=123
$K^*(892)^0 K_S^0, K^{*0} \rightarrow$ $K^+ \pi^-$	$(1.14 \pm 0.21) \times 10^{-4}$		608		DESIG=124
$K^*(892)^- K^+, K^{*-} \rightarrow$ $K_S^0 \pi^-$	$(6.4 \pm 1.0) \times 10^{-4}$		-		DESIG=413
$K^*(1410)^0 K_S^0, K^{*0} \rightarrow$ $K^+ \pi^+$	$(5 \pm 8) \times 10^{-5}$		-		DESIG=418
$K^*(1410)^- K^+, K^{*-} \rightarrow$ $K_S^0 \pi^-$	$(2.6 \pm 2.1) \times 10^{-4}$		-		DESIG=415
$(K^+ \pi^-)_{S\text{-wave}} K_S^0$	$(3.8 \pm 1.9) \times 10^{-4}$		739		DESIG=421
$(K_S^0 \pi^-)_{S\text{-wave}} K^+$	$(1.4 \pm 0.6) \times 10^{-4}$		739		DESIG=422
$a_0(980)^+ \pi^-, a_0^+ \rightarrow K_S^0 K^+$	$(6 \pm 4) \times 10^{-4}$		-		DESIG=426
$a_0(1450)^+ \pi^-, a_0^+ \rightarrow$ $K_S^0 K^+$	$(3.3 \pm 2.6) \times 10^{-5}$		-		DESIG=427
$\rho(1700)^+ \pi^-, \rho^+ \rightarrow K_S^0 K^+$	$(1.2 \pm 0.6) \times 10^{-5}$		-		DESIG=428
$K^+ K^- \pi^0$	$(3.42 \pm 0.15) \times 10^{-3}$		743		DESIG=243
$K^*(892)^+ K^-, K^*(892)^+ \rightarrow$ $K^+ \pi^0$	$(1.52 \pm 0.08) \times 10^{-3}$		-		DESIG=344
$K^*(892)^- K^+, K^*(892)^- \rightarrow$ $K^- \pi^0$	$(5.4 \pm 0.4) \times 10^{-4}$		-		DESIG=345
$(K^+ \pi^0)_{S\text{-wave}} K^-$	$(2.43 \pm 0.18) \times 10^{-3}$		743		DESIG=364
$(K^- \pi^0)_{S\text{-wave}} K^+$	$(1.3 \pm 0.5) \times 10^{-4}$		743		DESIG=365
$f_0(980) \pi^0, f_0 \rightarrow K^+ K^-$	$(3.6 \pm 0.6) \times 10^{-4}$		-		DESIG=366
$\phi \pi^0, \phi \rightarrow K^+ K^-$	$(6.6 \pm 0.4) \times 10^{-4}$		-		DESIG=346
$2K_S^0 \pi^0$	$< 1.45 \times 10^{-4}$	CL=90%	740		DESIG=242
$K^+ K^- \eta$	$(5.9 \pm 1.9) \times 10^{-5}$		514		DESIG=554
$\phi(1020) \eta$	$(1.81 \pm 0.12) \times 10^{-4}$		489		DESIG=569
$K^+ K^- \eta$ nonresonant	$(9.9 \pm 0.9) \times 10^{-5}$		514		DESIG=568
$2K_S^0 \eta$	$(1.3 \pm 0.6) \times 10^{-4}$		508		DESIG=555
$K^+ K^- \pi^0 \pi^0$	$(6.9 \pm 0.8) \times 10^{-4}$		681		DESIG=563
$K^+ K^- \pi^+ \pi^-$	$(2.47 \pm 0.11) \times 10^{-3}$		677		DESIG=63
$\phi(\pi^+ \pi^-)_{S\text{-wave}}, \phi \rightarrow$ $K^+ K^-$	$(10 \pm 5) \times 10^{-5}$		614		DESIG=115
$(\phi \rho^0)_{S\text{-wave}}, \phi \rightarrow K^+ K^-$	$(6.9 \pm 0.6) \times 10^{-4}$		250		DESIG=134
$(\phi \rho^0)_{P\text{-wave}}, \phi \rightarrow K^+ K^-$	$(4.0 \pm 1.9) \times 10^{-5}$		-		DESIG=461
$(\phi \rho^0)_{D\text{-wave}}, \phi \rightarrow K^+ K^-$	$(4.2 \pm 1.4) \times 10^{-5}$		-		DESIG=395

$(K^*(892)^0 \bar{K}^*(892)^0)_{S\text{-wave}},$ $K^{*0} \rightarrow K^\pm \pi^\mp$	$(2.24 \pm 0.13) \times 10^{-4}$	—	DESIG=396
$(K^*(892)^0 \bar{K}^*(892)^0)_{P\text{-wave}},$ $K^* \rightarrow K^\pm \pi^\mp$	$(1.20 \pm 0.08) \times 10^{-4}$	—	DESIG=462
$(K^*(892)^0 \bar{K}^*(892)^0)_{D\text{-wave}},$ $K^* \rightarrow K^\pm \pi^\mp$	$(4.7 \pm 0.4) \times 10^{-5}$	—	DESIG=463
$K^*(892)^0 (K^- \pi^+)_{S\text{-wave}}$ 3-body, $K^{*0} \rightarrow K^+ \pi^-$	$(1.4 \pm 0.6) \times 10^{-4}$	—	DESIG=470
$K_1(1270)^+ K^-, K_1^+ \rightarrow$ $K^{*0} \pi^+$	$(1.4 \pm 0.9) \times 10^{-4}$	—	DESIG=398
$K_1(1270)^+ K^-, K_1^+ \rightarrow$ $K^*(1430)^0 \pi^+, K^{*0} \rightarrow$ $K^+ \pi^-$	$(1.5 \pm 0.5) \times 10^{-4}$	—	DESIG=466
$K_1(1270)^+ K^-, K_1^+ \rightarrow$ $\rho^0 K^+$	$(2.2 \pm 0.6) \times 10^{-4}$	—	DESIG=399
$K_1(1270)^+ K^-, K_1^+ \rightarrow$ $\omega(782) K^+, \omega \rightarrow \pi^+ \pi^-$	$(1.5 \pm 1.2) \times 10^{-5}$	—	DESIG=467
$K_1(1270)^- K^+, K_1^- \rightarrow$ $\rho^0 K^-$	$(1.3 \pm 0.4) \times 10^{-4}$	—	DESIG=401
$K_1(1400)^+ K^-, K_1^+ \rightarrow$ $K^*(892)^0 \pi^+, K^{*0} \rightarrow$ $K^+ \pi^-$	$(4.6 \pm 0.4) \times 10^{-4}$	—	DESIG=465
$K^*(1410)^- K^+, K^{*-} \rightarrow$ $K^{*0} \pi^-$	$(7.0 \pm 1.1) \times 10^{-5}$	—	DESIG=403
$K_1(1680)^+ K^-, K_1^+ \rightarrow$ $K^{*0} \pi^+, K^{*0} \rightarrow K^+ \pi^-$	$(8.9 \pm 3.2) \times 10^{-5}$	—	DESIG=468
$K^+ K^- \pi^+ \pi^-$ non-resonant	$(2.7 \pm 0.6) \times 10^{-4}$	—	DESIG=469
$2K_S^0 \pi^+ \pi^-$	$(5.3 \pm 0.9) \times 10^{-4}$	673	DESIG=215
$K_S^0 K^- \pi^+ \pi^0$	$(1.32 \pm 0.16) \times 10^{-3}$	677	DESIG=564
$K_S^0 K^+ \pi^- \pi^0$	$(6.5 \pm 0.7) \times 10^{-4}$	677	DESIG=565
$K_S^0 K^- 2\pi^+ \pi^-$	$< 1.5 \times 10^{-4}$	CL=90%	595 DESIG=178
$K^+ K^- \pi^+ \pi^- \pi^0$	$(3.1 \pm 2.0) \times 10^{-3}$	600	DESIG=131

Other $K\bar{K}X$ modes. They include all decay modes of the ϕ , η , and ω .

$\phi \pi^0$	$(1.17 \pm 0.04) \times 10^{-3}$	645	CLUMP=G;NODE=S032 DESIG=212
$\phi \eta$	$(1.8 \pm 0.5) \times 10^{-4}$	489	DESIG=213
$\phi \omega$	$(6.5 \pm 1.0) \times 10^{-4}$	238	DESIG=214

Radiative modes

$\rho^0 \gamma$	$(1.82 \pm 0.32) \times 10^{-5}$	771	NODE=S032;CLUMP=I DESIG=245
$\omega \gamma$	$< 2.4 \times 10^{-4}$	CL=90% 768	DESIG=246
$\phi \gamma$	$(2.81 \pm 0.19) \times 10^{-5}$	654	DESIG=247
$\bar{K}^*(892)^0 \gamma$	$(4.1 \pm 0.7) \times 10^{-4}$	719	DESIG=248

Doubly Cabibbo suppressed (DC) modes or $\Delta C = 2$ forbidden via mixing (C2M) modes

$K^+ \ell^- \bar{\nu}_\ell$ via \bar{D}^0	$[r] < 2.2 \times 10^{-5}$	CL=90%	—	DESIG=241;OUR EVAL;→ UNCHECKED ←
K^+ or $K^*(892)^+$ $e^- \bar{\nu}_e$ via \bar{D}^0	$< 6 \times 10^{-5}$	CL=90%	—	DESIG=311;OUR EVAL;→ UNCHECKED ←
$K^+ \pi^-$ DC	$(1.50 \pm 0.07) \times 10^{-4}$	S=3.0	861	DESIG=50
$K^+ \pi^-$ via DCS	$(1.362 \pm 0.025) \times 10^{-4}$	—	—	DESIG=362
$K^+ \pi^-$ via \bar{D}^0	$< 1.6 \times 10^{-5}$	CL=95%	861	DESIG=6
$K_S^0 \pi^+ \pi^-$ in $D^0 \rightarrow \bar{D}^0$	$< 1.8 \times 10^{-4}$	CL=95%	—	DESIG=339
$K^*(892)^+ \pi^-, K^{*+} \rightarrow$ DC $K_S^0 \pi^+$	$(1.15 \pm_{-0.34}^{+0.60}) \times 10^{-4}$	711	—	DESIG=287;OUR EVAL;→ UNCHECKED ←
$K_0^*(1430)^+ \pi^-, K_0^{*+} \rightarrow$ DC $K_S^0 \pi^+$	$< 1.4 \times 10^{-5}$	—	—	DESIG=385;OUR EVAL;→ UNCHECKED ←

$K_2^*(1430)^+ \pi^-, K_2^{*+} \rightarrow DC$	$< 3.4 \times 10^{-5}$	–	DESIG=386;OUR EVAL;→ UNCHECKED ←
$K_S^0 \pi^+$			
$K^+ \pi^- \pi^0$	$DC (3.06 \pm 0.16) \times 10^{-4}$	S=1.4 844	DESIG=277
$K^+ \pi^- \pi^0$ via \bar{D}^0	$(7.6 \pm_{-0.6}^{0.5}) \times 10^{-4}$	–	DESIG=343
$K^+ \pi^- 2\pi^0$	$< 3.6 \times 10^{-4}$	CL=90% 815	DESIG=577
$K^+ \pi^+ 2\pi^-$ via DCS	$(2.49 \pm 0.07) \times 10^{-4}$	–	DESIG=432
$K^+ \pi^+ 2\pi^-$	$DC (2.65 \pm 0.06) \times 10^{-4}$	813	DESIG=51
$K^+ \pi^+ 2\pi^-$ via \bar{D}^0	$(7.9 \pm 3.0) \times 10^{-6}$	812	DESIG=222
μ^- anything via \bar{D}^0	$< 4 \times 10^{-4}$	CL=90% –	DESIG=26

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

NODE=S032;CLUMP=H

$\gamma\gamma$	C1	$< 8.5 \times 10^{-7}$	CL=90%	932	DESIG=45
$e^+ e^-$	C1	$< 7.9 \times 10^{-8}$	CL=90%	932	DESIG=39
$\mu^+ \mu^-$	C1	$< 3.1 \times 10^{-9}$	CL=90%	926	DESIG=28
$\pi^0 e^+ e^-$	C1	$< 4 \times 10^{-6}$	CL=90%	928	DESIG=225
$\pi^0 \mu^+ \mu^-$	C1	$< 1.8 \times 10^{-4}$	CL=90%	915	DESIG=216
$\pi^0 \nu \bar{\nu}$	C1	$< 2.1 \times 10^{-4}$	CL=90%	928	DESIG=571
$\eta e^+ e^-$	C1	$< 3 \times 10^{-6}$	CL=90%	852	DESIG=226
$\eta \mu^+ \mu^-$	C1	$< 5.3 \times 10^{-4}$	CL=90%	838	DESIG=227
$\pi^+ \pi^- e^+ e^-$	C1	$< 7 \times 10^{-6}$	CL=90%	922	DESIG=262
$\rho^0 e^+ e^-$	C1	$< 1.0 \times 10^{-4}$	CL=90%	771	DESIG=52
$\pi^+ \pi^- \mu^+ \mu^-$	C1	$(9.6 \pm 1.2) \times 10^{-7}$		894	DESIG=263
$\pi^+ \pi^- \mu^+ \mu^-$ (non-res)	C1	$< 5.5 \times 10^{-7}$	CL=90%	–	DESIG=471
$\rho^0 \mu^+ \mu^-$	C1	$< 2.2 \times 10^{-5}$	CL=90%	754	DESIG=53
$\omega e^+ e^-$	C1	$< 6 \times 10^{-6}$	CL=90%	768	DESIG=228
$\omega \mu^+ \mu^-$	C1	$< 8.3 \times 10^{-4}$	CL=90%	751	DESIG=229
$K^- K^+ e^+ e^-$	C1	$< 1.1 \times 10^{-5}$	CL=90%	791	DESIG=266
$\phi e^+ e^-$	C1	$< 5.2 \times 10^{-5}$	CL=90%	654	DESIG=230
$K^- K^+ \mu^+ \mu^-$	C1	$(1.54 \pm 0.32) \times 10^{-7}$		710	DESIG=267
$K^- K^+ \mu^+ \mu^-$ (non-res)	C1	$< 3.3 \times 10^{-5}$	CL=90%	–	DESIG=473
$\phi \mu^+ \mu^-$	C1	$< 3.1 \times 10^{-5}$	CL=90%	631	DESIG=231
$\bar{K}^0 e^+ e^-$	[h]	$< 2.4 \times 10^{-5}$	CL=90%	866	DESIG=67
$\bar{K}^0 \mu^+ \mu^-$	[h]	$< 2.6 \times 10^{-4}$	CL=90%	852	DESIG=217
$K^- \pi^+ e^+ e^-, 675 < m_{ee} < 875 \text{ MeV}$		$(4.0 \pm 0.5) \times 10^{-6}$		–	DESIG=551
$K^- \pi^+ e^+ e^-, 1.005 < m_{ee} < 1.035 \text{ GeV}$		$< 5 \times 10^{-7}$	CL=90%	–	DESIG=552
$\bar{K}^*(892)^0 e^+ e^-$	[h]	$< 4.7 \times 10^{-5}$	CL=90%	719	DESIG=232
$K^- \pi^+ \mu^+ \mu^-$	C1	$< 3.59 \times 10^{-4}$	CL=90%	829	DESIG=265
$K^- \pi^+ \mu^+ \mu^-, 675 < m_{\mu\mu} < 875 \text{ MeV}$		$(4.2 \pm 0.4) \times 10^{-6}$		–	DESIG=434
$\bar{K}^*(892)^0 \mu^+ \mu^-$	[h]	$< 2.4 \times 10^{-5}$	CL=90%	700	DESIG=233
$\pi^+ \pi^- \pi^0 \mu^+ \mu^-$	C1	$< 8.1 \times 10^{-4}$	CL=90%	863	DESIG=218
$\mu^\pm e^\mp$	LF	[s] $< 1.3 \times 10^{-8}$	CL=90%	929	DESIG=40
$\pi^0 e^\pm \mu^\mp$	LF	[s] $< 8.0 \times 10^{-7}$	CL=90%	924	DESIG=234
$\eta e^\pm \mu^\mp$	LF	[s] $< 2.25 \times 10^{-6}$	CL=90%	848	DESIG=235
$\pi^+ \pi^- e^\pm \mu^\mp$	LF	[s] $< 1.71 \times 10^{-6}$	CL=90%	911	DESIG=268
$\rho^0 e^\pm \mu^\mp$	LF	[s] $< 5.0 \times 10^{-7}$	CL=90%	767	DESIG=236
$\omega e^\pm \mu^\mp$	LF	[s] $< 1.71 \times 10^{-6}$	CL=90%	764	DESIG=237
$K^- K^+ e^\pm \mu^\mp$	LF	[s] $< 1.00 \times 10^{-6}$	CL=90%	754	DESIG=270
$\phi e^\pm \mu^\mp$	LF	[s] $< 5.1 \times 10^{-7}$	CL=90%	648	DESIG=238
$\bar{K}^0 e^\pm \mu^\mp$	LF	[s] $< 1.74 \times 10^{-6}$	CL=90%	863	DESIG=239
$K^- \pi^+ e^\pm \mu^\mp$	LF	[s] $< 1.90 \times 10^{-6}$	CL=90%	848	DESIG=269
$\bar{K}^*(892)^0 e^\pm \mu^\mp$	LF	[s] $< 1.25 \times 10^{-6}$	CL=90%	714	DESIG=240

$2\pi^- 2e^+$	L	< 9.1	$\times 10^{-7}$	CL=90%	922	DESIG=253
$2\pi^- 2\mu^+$	L	< 1.52	$\times 10^{-6}$	CL=90%	894	DESIG=254
$K^- \pi^- 2e^+$	L	< 5.0	$\times 10^{-7}$	CL=90%	861	DESIG=255
$K^- \pi^- 2\mu^+$	L	< 5.3	$\times 10^{-7}$	CL=90%	829	DESIG=256
$2K^- 2e^+$	L	< 3.4	$\times 10^{-7}$	CL=90%	791	DESIG=257
$2K^- 2\mu^+$	L	< 1.0	$\times 10^{-7}$	CL=90%	710	DESIG=258
$\pi^- \pi^- e^+ \mu^+$	L	< 3.06	$\times 10^{-6}$	CL=90%	911	DESIG=259
$K^- \pi^- e^+ \mu^+$	L	< 2.10	$\times 10^{-6}$	CL=90%	848	DESIG=260
$2K^- e^+ \mu^+$	L	< 5.8	$\times 10^{-7}$	CL=90%	754	DESIG=261
pe^-	L,B	< 5.5	$\times 10^{-7}$	CL=90%	696	DESIG=387
$\bar{p}e^+$	L,B	< 6.9	$\times 10^{-7}$	CL=90%	696	DESIG=388
$p\mu^-$	L,B	< 5.1	$\times 10^{-7}$	CL=90%	691	DESIG=591
$\bar{p}\mu^+$	L,B	< 6.3	$\times 10^{-7}$	CL=90%	691	DESIG=592

 $D^*(2007)^0$

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

Mass $m = 2006.85 \pm 0.05$ MeV ($S = 1.1$)

$m_{D^{*0}} - m_{D^0} = 142.014 \pm 0.030$ MeV ($S = 1.5$)

Full width $\Gamma < 2.1$ MeV, CL = 90%

$\bar{D}^*(2007)^0$ modes are charge conjugates of modes below.

NODE=M061

NODE=M061M;DTYPE=M

NODE=M061DM;DTYPE=D

NODE=M061W;DTYPE=G

NODE=M061220;NODE=M061

$D^*(2007)^0$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$D^0 \pi^0$	(64.7 ± 0.9) %		43
$D^0 \gamma$	(35.3 ± 0.9) %		137
$D^0 e^+ e^-$	(3.91 ± 0.33) × 10 ⁻³		137
$\mu^+ \mu^-$	< 2.5 × 10 ⁻⁸	90%	998
$e^+ e^-$	< 1.7 × 10 ⁻⁶	90%	1003

DESIG=1

DESIG=2

DESIG=3

DESIG=4

DESIG=5

 $D^*(2010)^\pm$

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

Mass $m = 2010.26 \pm 0.05$ MeV

$m_{D^*(2010)^+} - m_{D^+} = 140.603 \pm 0.015$ MeV

$m_{D^*(2010)^+} - m_{D^0} = 145.4258 \pm 0.0017$ MeV

Full width $\Gamma = 83.4 \pm 1.8$ keV

$D^*(2010)^-$ modes are charge conjugates of the modes below.

NODE=M062

NODE=M062M;DTYPE=M

NODE=M062MD;DTYPE=D

NODE=M062DM;DTYPE=D

NODE=M062W;DTYPE=G

NODE=M062225;NODE=M062

$D^*(2010)^\pm$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$D^0 \pi^+$	(67.7 ± 0.5) %		39
$D^+ \pi^0$	(30.7 ± 0.5) %		38
$D^+ \gamma$	(1.6 ± 0.4) %		136
$e^+ \nu_e$	< 1.1 × 10 ⁻⁵	90%	1005
$\mu^+ \nu_\mu$	< 4.3 × 10 ⁻⁶	90%	1002

DESIG=1

DESIG=3

DESIG=2

DESIG=5

DESIG=6

 $D_0^*(2300)$

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

was $D_0^*(2400)$

Mass $m = 2343 \pm 10$ MeV ($S = 1.5$)

Full width $\Gamma = 229 \pm 16$ MeV

NODE=M252

NODE=M252M;DTYPE=M

NODE=M252W;DTYPE=G

$D_0^*(2300)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D\pi^\pm$	seen	411

NODE=M252215;DESIG=1

 $D_1(2420)$

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

Mass $m = 2422.1 \pm 0.6$ MeV ($S = 1.7$)
 $m_{D_1(2420)^0} - m_{D^{*+}} = 411.8 \pm 0.6$ MeV ($S = 1.7$)
 $m_{D_1(2420)^\pm} - m_{D_1(2420)^0} = 4 \pm 4$ MeV
 Full width $\Gamma = 31.3 \pm 1.9$ MeV ($S = 2.8$)

 $\bar{D}_1(2420)$ modes are charge conjugates of modes below.

NODE=M253

NODE=M253M;DTYPE=M

NODE=M253DM;DTYPE=D

NODE=M253DMC;DTYPE=D

NODE=M253W;DTYPE=G

NODE=M253215;NODE=M253

$D_1(2420)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^*(2007)^0\pi$	seen	359

DESIG=1

 $D_1(2430)^0$

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

Mass $m = 2412 \pm 9$ MeV
 Full width $\Gamma = 314 \pm 29$ MeV

NODE=M180

NODE=M180M;DTYPE=M

NODE=M180W;DTYPE=G

$D_1(2430)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D^*(2010)^+\pi^-$	seen	345

NODE=M180215;DESIG=1;OUR EVAL;
→ UNCHECKED ← **$D_2^*(2460)$**

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

Mass $m = 2461.1 \pm 0.8$ MeV ($S = 6.3$)
 $m_{D_2^*(2460)^0} - m_{D^+} = 591.5 \pm 0.8$ MeV ($S = 6.0$)
 $m_{D_2^*(2460)^0} - m_{D^{*+}} = 450.9 \pm 0.8$ MeV ($S = 6.0$)
 $m_{D_2^*(2460)^\pm} - m_{D_2^*(2460)^0} = 2.4 \pm 1.7$ MeV
 Full width $\Gamma = 47.3 \pm 0.8$ MeV ($S = 1.5$)

 $\bar{D}_2^*(2460)$ modes are charge conjugates of modes below.

NODE=M254

NODE=M254M;DTYPE=M

NODE=M254DM;DTYPE=D

NODE=M254DM2;DTYPE=D

NODE=M254DMC;DTYPE=D

NODE=M254W;DTYPE=G

NODE=M254215;NODE=M254

$D_2^*(2460)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D\pi^-$	seen	509
$D^*(2010)\pi^-$	seen	389

DESIG=1

DESIG=2

 $D_3^*(2750)$

$$I(J^P) = \frac{1}{2}(3^-)$$

Mass $m = 2763.1 \pm 3.2$ MeV ($S = 2.1$)
 Full width $\Gamma = 66 \pm 5$ MeV

NODE=M203

NODE=M203M;DTYPE=M

NODE=M203W;DTYPE=G

$D_3^*(2750)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$D\pi$	seen	743
$D^+\pi^-$	seen	739
$D^0\pi^\pm$	seen	743
$D^*\pi$	seen	639
$D^{*+}\pi^-$	seen	639

NODE=M203215;DESIG=1;OUR EVAL;

→ UNCHECKED ←

DESIG=2;OUR EVAL;→ UNCHECKED ←

DESIG=3;OUR EVAL;→ UNCHECKED ←

DESIG=4;OUR EVAL;→ UNCHECKED ←

DESIG=5;OUR EVAL;→ UNCHECKED ←

NOTES

- [a] This result applies to $Z^0 \rightarrow c\bar{c}$ decays only. Here ℓ^+ is an average (not a sum) of e^+ and μ^+ decays. LINKAGE=DZC
- [b] See the Particle Listings for the (complicated) definition of this quantity. LINKAGE=DEF
- [c] 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 in the Particle Listings. LINKAGE=SDQ
- [d] These subfractions of the $K^- 2\pi^+$ mode are uncertain: see the Particle Listings. LINKAGE=UNC
- [e] See the listings under " $D \rightarrow K\pi\pi\pi$ partial wave analyses" and our 2008 Review (Physics Letters **B667** 1 (2008)) for measurements of submodes of this mode. LINKAGE=S08
- [f] The unseen decay modes of the resonances are included. LINKAGE=UDM
- [g] This is *not* a test for the $\Delta C=1$ weak neutral current, but leads to the $\pi^+ \ell^+ \ell^-$ final state. LINKAGE=NTC
- [h] This mode is not a useful test for a $\Delta C=1$ weak neutral current because both quarks must change flavor in this decay. LINKAGE=FIX
- [i] In the 2010 Review, the values for these quantities were given using a measure of the asymmetry that was inconsistent with the usual definition. LINKAGE=MVL
- [j] This value is obtained by subtracting the branching fractions for 2-, 4- and 6-prongs from unity. LINKAGE=TP0
- [k] This is the sum of our $K^- 2\pi^+ \pi^-$, $K^- 2\pi^+ \pi^- \pi^0$, $\bar{K}^0 2\pi^+ 2\pi^-$, $K^+ 2K^- \pi^+$, $2\pi^+ 2\pi^-$, $2\pi^+ 2\pi^- \pi^0$, $K^+ K^- \pi^+ \pi^-$, and $K^+ K^- \pi^+ \pi^- \pi^0$, branching fractions. LINKAGE=TP4
- [l] This is the sum of our $K^- 3\pi^+ 2\pi^-$ and $3\pi^+ 3\pi^-$ branching fractions. LINKAGE=TP6
- [n] The branching fractions for the $K^- e^+ \nu_e$, $K^*(892)^- e^+ \nu_e$, $\pi^- e^+ \nu_e$, and $\rho^- e^+ \nu_e$ modes add up to 6.17 ± 0.17 % . LINKAGE=EAN
- [o] This is a doubly Cabibbo-suppressed mode. LINKAGE=DCS
- [p] Submodes of the $D^0 \rightarrow K_S^0 \pi^+ \pi^- \pi^0$ mode with a K^* and/or ρ were studied by COFFMAN 92B, but with only 140 events. With nothing new for 18 years, we refer to our 2008 edition, Physics Letters **B667** 1 (2008), for those results. LINKAGE=DKP
- [q] This branching fraction includes all the decay modes of the resonance in the final state. LINKAGE=ADC
- [r] This limit assumes the average of $B(D^0 \rightarrow K^- e^+ \nu_e)$ and $B(D^0 \rightarrow K^- \mu^+ \nu_\mu)$ for the $B(D^0 \rightarrow K^- \ell^+ \nu_\ell)$ value. LINKAGE=DLN
- [s] The value is for the sum of the charge states or particle/antiparticle states indicated. LINKAGE=SG