K_S^0

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

Mean life $\tau = (0.8926 \pm 0.0012) \times 10^{-10}$ s
$c\tau = 2.676$ cm

CP-violation parameters [x]

$\mathrm{Im}(\eta_{+-0})^2 < 0.12$, CL = 90%
$\mathrm{Im}(\eta_{000})^2 < 0.1$, CL = 90%

K_S^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$\pi^+\pi^-$		(68.61 ± 0.28) %	S=1.2	206
$\pi^0\pi^0$		(31.39 ± 0.28) %	S=1.2	209
$\pi^+\pi^-\gamma$	[u,y]	(1.78 ± 0.05) $\times 10^{-3}$		206
$\gamma\gamma$		(2.4 ± 1.2) $\times 10^{-6}$		249
$\pi^+\pi^-\pi^0$		< 8.5 $\times 10^{-5}$	CL=90%	133
$3\pi^0$		< 3.7 $\times 10^{-5}$	CL=90%	139
$\pi^\pm e^\mp \nu$	[z]	(6.68 ± 0.10) $\times 10^{-4}$	S=1.3	229
$\pi^\pm \mu^\mp \nu$	[z]	(4.66 ± 0.07) $\times 10^{-4}$	S=1.2	216
$\Delta S = 1$ weak neutral current ($S1$) modes				
$\mu^+\mu^-$	$S1$	< 3.2 $\times 10^{-7}$	CL=90%	225
e^+e^-	$S1$	< 1.0 $\times 10^{-5}$	CL=90%	249
$\pi^0 e^+ e^-$	$S1$	< 1.1 $\times 10^{-6}$	CL=90%	231

K_L^0

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

$m_{K_L} - m_{K_S} = (0.5333 \pm 0.0027) \times 10^{10}\ \hbar\ \mathrm{s}^{-1}$ (S = 1.2)
$= (3.510 \pm 0.018) \times 10^{-12}$ MeV
Mean life $\tau = (5.17 \pm 0.04) \times 10^{-8}$ s
$c\tau = 15.49$ m

Slope parameter g [r]

(See Full Listings for quadratic coefficients)
$K_L^0 \to \pi^+\pi^-\pi^0 = 0.670 \pm 0.014$ (S = 1.6)

K_L decay form factors [s]

K_{e3}^0 $\lambda_+ = 0.0300 \pm 0.0016$ (S = 1.2)
$K_{\mu 3}^0$ $\lambda_+ = 0.034 \pm 0.005$ (S = 2.3)
$K_{\mu 3}^0$ $\lambda_0 = 0.025 \pm 0.006$ (S = 2.3)
K_{e3}^0 $|f_S/f_+| < 0.04$, CL = 68%
K_{e3}^0 $|f_T/f_+| < 0.23$, CL = 68%
$K_{\mu 3}^0$ $|f_T/f_+| = 0.12 \pm 0.12$
$K_L \to e^+e^-\gamma$: $\alpha_{K^*} = -0.28 \pm 0.08$

CP-violation parameters [x]

$\delta = (0.327 \pm 0.012)\%$
$|\eta_{00}| = (2.259 \pm 0.023) \times 10^{-3}$ (S = 1.1)
$|\eta_{+-}| = (2.269 \pm 0.023) \times 10^{-3}$ (S = 1.1)
$|\eta_{00}/\eta_{+-}| = 0.9955 \pm 0.0023$ [aa] (S = 1.8)
$\epsilon'/\epsilon = (1.5 \pm 0.8) \times 10^{-3}$ [aa] (S = 1.8)
$\phi_{+-} = (44.3 \pm 0.8)^\circ$
$\phi_{00} = (43.3 \pm 1.3)^\circ$

$\Delta S = -\Delta Q$ in $K_{\ell 3}^0$ decay

Re $x = 0.006 \pm 0.018$ (S = 1.3)
Im $x = -0.003 \pm 0.026$ (S = 1.2)

K_L^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$3\pi^0$		(21.6 ± 0.8) %	S=1.5	139
$\pi^+\pi^-\pi^0$		(12.38 ± 0.21) %	S=1.5	133
$\pi^\pm\mu^\mp\nu$ Called $K_{\mu 3}^0$.	[q]	(27.0 ± 0.4) %	S=1.3	216
$\pi^\pm e^\mp\nu$ Called K_{e3}^0.	[q]	(38.7 ± 0.5) %	S=1.4	229
2γ		(5.73 ± 0.27) $\times 10^{-4}$	S=2.0	249
$\pi^0 2\gamma$	[bb]	(1.70 ± 0.28) $\times 10^{-6}$		231
$\pi^0\pi^\pm e^\mp\nu$	[q]	(5.18 ± 0.29) $\times 10^{-5}$		207
$(\pi\mu\,\mathrm{atom})\nu$		(1.05 ± 0.11) $\times 10^{-7}$		216
$\pi^\pm e^\mp \nu_e \gamma$	[q,u,bb]	(1.3 ± 0.8) %		229
$\pi^+\pi^-\gamma$	[u,bb]	(4.61 ± 0.14) $\times 10^{-5}$		206
$\pi^0\pi^0\gamma$		< 5.6 $\times 10^{-6}$		–
Charge conjugation × Parity (CP) or Lepton Family number (LF) violating modes, or $\Delta S = 1$ weak neutral current ($S1$) modes				
$\pi^+\pi^-$	CPV	(2.03 ± 0.04) $\times 10^{-3}$	S=1.2	206
$\pi^0\pi^0$	CPV	(9.14 ± 0.34) $\times 10^{-4}$	S=1.8	209
$\mu^+\mu^-$	$S1$	(7.4 ± 0.4) $\times 10^{-9}$		225
$\mu^+\mu^-\gamma$	$S1$	(2.8 ± 2.8) $\times 10^{-7}$		225
e^+e^-	$S1$	< 4.1 $\times 10^{-11}$	CL=90%	249
$e^+e^-\gamma$	$S1$	(9.1 ± 0.5) $\times 10^{-6}$		249
$e^+e^-\gamma\gamma$	$S1$ [bb]	(6.6 ± 3.2) $\times 10^{-7}$		249
$\pi^+\pi^-e^+e^-$	$S1$	< 2.5 $\times 10^{-6}$	CL=90%	206
$\mu^+\mu^-e^+e^-$	$S1$	< 4.9 $\times 10^{-6}$	CL=90%	225
$e^+e^-e^+e^-$	$S1$ [cc]	(3.9 ± 0.7) $\times 10^{-8}$		249
$\pi^0\mu^+\mu^-$	$CP,S1$ [dd]	< 5.1 $\times 10^{-9}$	CL=90%	177
$\pi^0 e^+e^-$	$CP,S1$ [dd]	< 4.3 $\times 10^{-9}$	CL=90%	231
$\pi^0\nu\overline{\nu}$	$CP,S1$ [ee]	< 2.2 $\times 10^{-4}$	CL=90%	231
$e^\pm\mu^\mp$	LF [q]	< 3.3 $\times 10^{-11}$	CL=90%	238

$K^*(892)$

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

$K^*(892)^\pm$ mass $m = 891.59 \pm 0.24$ MeV (S = 1.1)
$K^*(892)^0$ mass $m = 896.10 \pm 0.28$ MeV (S = 1.4)
$K^*(892)^\pm$ full width $\Gamma = 49.8 \pm 0.8$ MeV
$K^*(892)^0$ full width $\Gamma = 50.5 \pm 0.6$ MeV (S = 1.1)

$K^*(892)$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$K\pi$	~ 100 %		291
$K^0\gamma$	(2.30 ± 0.20) $\times 10^{-3}$		310
$K^\pm\gamma$	(1.01 ± 0.09) $\times 10^{-3}$		309
$K\pi\pi$	< 7 $\times 10^{-4}$	95%	224

$K_1(1270)$

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

Mass $m = 1273 \pm 7$ MeV [k]
Full width $\Gamma = 90 \pm 20$ MeV [k]

$K_1(1270)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\rho$	(42 ± 6) %	76
$K_0^*(1430)\pi$	(28 ± 4) %	–
$K^*(892)\pi$	(16 ± 5) %	301
$K\omega$	(11.0 ± 2.0) %	–
$K f_0(1300)$	(3.0 ± 2.0) %	–

$K_1(1400)$

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

Mass $m = 1402 \pm 7$ MeV
Full width $\Gamma = 174 \pm 13$ MeV (S = 1.6)

$K_1(1400)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K^*(892)\pi$	(94 ± 6) %	401
$K\rho$	(3.0 ± 3.0) %	298
$K f_0(1300)$	(2.0 ± 2.0) %	–
$K\omega$	(1.0 ± 1.0) %	285