

STRANGE MESONS

($S = \pm 1, C = B = 0$)

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

K^\pm

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

$$\text{Mass } m = 493.677 \pm 0.016 \text{ MeV } [u] \quad (S = 2.8)$$

$$\text{Mean life } \tau = (1.2386 \pm 0.0024) \times 10^{-8} \text{ s} \quad (S = 2.0)$$

$$c\tau = 3.713 \text{ m}$$

Slope parameter g [v]

(See Particle Listings for quadratic coefficients)

$$K^+ \rightarrow \pi^+ \pi^+ \pi^- = -0.2154 \pm 0.0035 \quad (S = 1.4)$$

$$K^- \rightarrow \pi^- \pi^- \pi^+ = -0.217 \pm 0.007 \quad (S = 2.5)$$

$$K^\pm \rightarrow \pi^\pm \pi^0 \pi^0 = 0.652 \pm 0.031 \quad (S = 2.7)$$

K^\pm decay form factors [a,w]

$$K_{e3}^+ \quad \lambda_+ = 0.0276 \pm 0.0021$$

$$K_{\mu 3}^+ \quad \lambda_+ = 0.031 \pm 0.008 \quad (S = 1.6)$$

$$K_{\mu 3}^+ \quad \lambda_0 = 0.006 \pm 0.007 \quad (S = 1.6)$$

$$K_{e3}^+ \quad |f_S/f_+| = 0.084 \pm 0.023 \quad (S = 1.2)$$

$$K_{e3}^+ \quad |f_T/f_+| = 0.38 \pm 0.11 \quad (S = 1.1)$$

$$K_{\mu 3}^+ \quad |f_T/f_+| = 0.02 \pm 0.12$$

$$K^+ \rightarrow e^+ \nu_e \gamma \quad |F_A + F_V| = 0.148 \pm 0.010$$

$$K^+ \rightarrow \mu^+ \nu_\mu \gamma \quad |F_A + F_V| < 0.23, \text{ CL} = 90\%$$

$$K^+ \rightarrow e^+ \nu_e \gamma \quad |F_A - F_V| < 0.49$$

$$K^+ \rightarrow \mu^+ \nu_\mu \gamma \quad |F_A - F_V| = -2.2 \text{ to } 0.3$$

K^- modes are charge conjugates of the modes below.

K^+ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$\mu^+ \nu_\mu$	(63.51±0.18) %	S=1.3	236
$e^+ \nu_e$	(1.55±0.07) × 10 ⁻⁵		247
$\pi^+ \pi^0$	(21.16±0.14) %	S=1.1	205
$\pi^+ \pi^+ \pi^-$	(5.59±0.05) %	S=1.8	125
$\pi^+ \pi^0 \pi^0$	(1.73±0.04) %	S=1.2	133
$\pi^0 \mu^+ \nu_\mu$	(3.18±0.08) %	S=1.5	215

Called $K_{\mu 3}^+$.

$\pi^0 e^+ \nu_e$	(4.82±0.06) %	S=1.3	228
Called K_{e3}^+ .			
$\pi^0 \pi^0 e^+ \nu_e$	(2.1 ±0.4) × 10 ⁻⁵		206
$\pi^+ \pi^- e^+ \nu_e$	(3.91±0.17) × 10 ⁻⁵		203
$\pi^+ \pi^- \mu^+ \nu_\mu$	(1.4 ±0.9) × 10 ⁻⁵		151
$\pi^0 \pi^0 \pi^0 e^+ \nu_e$	< 3.5 × 10 ⁻⁶	CL=90%	135
$\mu^+ \nu_\mu \nu \bar{\nu}$	< 6.0 × 10 ⁻⁶	CL=90%	236
$e^+ \nu_e \nu \bar{\nu}$	< 6 × 10 ⁻⁵	CL=90%	247
$\mu^+ \nu_\mu e^+ e^-$	(1.3 ±0.4) × 10 ⁻⁷		236
$e^+ \nu_e e^+ e^-$	(3.0 ^{+3.0} _{-1.5}) × 10 ⁻⁸		247
$e^+ \nu_e \mu^+ \mu^-$	< 5 × 10 ⁻⁷	CL=90%	—
$\mu^+ \nu_\mu \mu^+ \mu^-$	< 4.1 × 10 ⁻⁷	CL=90%	185
$\mu^+ \nu_\mu \gamma$	[x,y] (5.50±0.28) × 10 ⁻³		236
$\pi^+ \pi^0 \gamma$	[x,y] (2.75±0.15) × 10 ⁻⁴		205
$\pi^+ \pi^0 \gamma$ (DE)	[y,z] (1.8 ±0.4) × 10 ⁻⁵		205
$\pi^+ \pi^+ \pi^- \gamma$	[x,y] (1.04±0.31) × 10 ⁻⁴		125
$\pi^+ \pi^0 \pi^0 \gamma$	[x,y] (7.5 ^{+5.5} _{-3.0}) × 10 ⁻⁶		133
$\pi^0 \mu^+ \nu_\mu \gamma$	[x,y] < 6.1 × 10 ⁻⁵	CL=90%	215
$\pi^0 e^+ \nu_e \gamma$	[x,y] (2.62±0.20) × 10 ⁻⁴		228
$\pi^0 e^+ \nu_e \gamma$ (SD)	[aa] < 5.3 × 10 ⁻⁵	CL=90%	228
$\pi^0 \pi^0 e^+ \nu_e \gamma$	< 5 × 10 ⁻⁶	CL=90%	206
$\pi^+ \gamma \gamma$	[y] (1.10±0.32) × 10 ⁻⁶		227
$\pi^+ 3\gamma$	[y] < 1.0 × 10 ⁻⁴	CL=90%	227

Lepton Family number (LF), Lepton number (L), $\Delta S = \Delta Q$ (SQ) violating modes, or $\Delta S = 1$ weak neutral current (S1) modes

$\pi^+ \pi^+ e^- \bar{\nu}_e$	SQ	< 1.2 × 10 ⁻⁸	CL=90%	203
$\pi^+ \pi^+ \mu^- \bar{\nu}_\mu$	SQ	< 3.0 × 10 ⁻⁶	CL=95%	151
$\pi^+ e^+ e^-$	S1	(2.88±0.13) × 10 ⁻⁷		227
$\pi^+ \mu^+ \mu^-$	S1	(7.6 ±2.1) × 10 ⁻⁸	S=3.4	172
$\pi^+ \nu \bar{\nu}$	S1	(1.5 ^{+3.4} _{-1.2}) × 10 ⁻¹⁰		227
$\mu^- \nu e^+ e^+$	LF	< 2.0 × 10 ⁻⁸	CL=90%	236
$\mu^+ \nu_e$	LF	[d] < 4 × 10 ⁻³	CL=90%	236
$\pi^+ \mu^+ e^-$	LF	< 2.1 × 10 ⁻¹⁰	CL=90%	214
$\pi^+ \mu^- e^+$	LF	< 7 × 10 ⁻⁹	CL=90%	214
$\pi^- \mu^+ e^+$	L	< 7 × 10 ⁻⁹	CL=90%	214
$\pi^- e^+ e^+$	L	< 1.0 × 10 ⁻⁸	CL=90%	227
$\pi^- \mu^+ \mu^+$	L	[d] < 1.5 × 10 ⁻⁴	CL=90%	172
$\mu^+ \bar{\nu}_e$	L	[d] < 3.3 × 10 ⁻³	CL=90%	236
$\pi^0 e^+ \bar{\nu}_e$	L	< 3 × 10 ⁻³	CL=90%	228



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

50% K_S , 50% K_L

Mass $m = 497.672 \pm 0.031$ MeV

$m_{K^0} - m_{K^\pm} = 3.995 \pm 0.034$ MeV ($S = 1.1$)

$|m_{K^0} - m_{\bar{K}^0}| / m_{\text{average}} < 10^{-18}$ [bb]

T-violation parameters in K^0 - \bar{K}^0 mixing [w]

Asymmetry A_T in K^0 - \bar{K}^0 mixing = $(6.6 \pm 1.6) \times 10^{-3}$

CPT-violation parameters in K^0 - \bar{K}^0 mixing [w]

Re $\Delta = (2.9 \pm 2.7) \times 10^{-4}$

Im $\Delta = (-0.8 \pm 3.1) \times 10^{-3}$



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

Mean life $\tau = (0.8935 \pm 0.0008) \times 10^{-10}$ s

$c\tau = 2.6786$ cm

CP-violation parameters [cc]

Im(η_{+-0}) = -0.002 ± 0.009

Im(η_{000}) = -0.05 ± 0.13

K_S^0 DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$\pi^+ \pi^-$	$(68.61 \pm 0.28) \%$	S=1.2	206
$\pi^0 \pi^0$	$(31.39 \pm 0.28) \%$	S=1.2	209
$\pi^+ \pi^- \gamma$	[x, dd] $(1.78 \pm 0.05) \times 10^{-3}$		206
$\gamma \gamma$	$(2.4 \pm 0.9) \times 10^{-6}$		249
$\pi^+ \pi^- \pi^0$	$(3.2^{+1.2}_{-1.0}) \times 10^{-7}$		133
$3\pi^0$	$< 1.4 \times 10^{-5}$	CL=90%	139
$\pi^\pm e^\mp \nu_e$	[ee] $(7.2 \pm 1.4) \times 10^{-4}$		229
$\Delta S = 1$ weak neutral current (S1) modes			
$\mu^+ \mu^-$	S1 $< 3.2 \times 10^{-7}$	CL=90%	225
$e^+ e^-$	S1 $< 1.4 \times 10^{-7}$	CL=90%	249
$\pi^0 e^+ e^-$	S1 $< 1.1 \times 10^{-6}$	CL=90%	231



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

$$m_{K_L} - m_{K_S} = (0.5300 \pm 0.0012) \times 10^{10} \hbar s^{-1}$$

$$= (3.489 \pm 0.008) \times 10^{-12} \text{ MeV}$$

$$\text{Mean life } \tau = (5.17 \pm 0.04) \times 10^{-8} \text{ s} \quad (S = 1.1)$$

$$c\tau = 15.51 \text{ m}$$

Slope parameter g ^[v]

(See Particle Listings for quadratic coefficients)

$$K_L^0 \rightarrow \pi^+ \pi^- \pi^0 = 0.678 \pm 0.008 \quad (S = 1.5)$$

K_L decay form factors ^[w]

$$K_{e3}^0 \quad \lambda_+ = 0.0288 \pm 0.0015 \quad (S = 1.3)$$

$$K_{\mu 3}^0 \quad \lambda_+ = 0.034 \pm 0.005 \quad (S = 2.3)$$

$$K_{\mu 3}^0 \quad \lambda_0 = 0.025 \pm 0.006 \quad (S = 2.3)$$

$$K_{e3}^0 \quad |f_S/f_+| < 0.04, \text{ CL} = 68\%$$

$$K_{e3}^0 \quad |f_T/f_+| < 0.23, \text{ CL} = 68\%$$

$$K_{\mu 3}^0 \quad |f_T/f_+| = 0.12 \pm 0.12$$

$$K_L \rightarrow e^+ e^- \gamma: \quad \alpha_{K^*} = -0.33 \pm 0.05$$

CP-violation parameters ^[cc]

$$\delta = (0.327 \pm 0.012)\%$$

$$|\eta_{00}| = (2.262 \pm 0.017) \times 10^{-3}$$

$$|\eta_{+-}| = (2.276 \pm 0.017) \times 10^{-3}$$

$$|\eta_{00}/\eta_{+-}| = 0.9936 \pm 0.0014 \text{ [ff]} \quad (S = 1.6)$$

$$\epsilon'/\epsilon = (2.1 \pm 0.5) \times 10^{-3} \text{ [ff]} \quad (S = 1.6)$$

$$\phi_{+-} = (43.3 \pm 0.5)^\circ$$

$$\phi_{00} = (43.2 \pm 1.0)^\circ$$

$$\phi_{00} - \phi_{+-} = (-0.1 \pm 0.8)^\circ$$

$$\text{CP asymmetry } A \text{ in } K_L^0 \rightarrow \pi^+ \pi^- e^+ e^- = (13.6 \pm 2.8)\%$$

$$j \text{ for } K_L^0 \rightarrow \pi^+ \pi^- \pi^0 = 0.0011 \pm 0.0008$$

$$f \text{ for } K_L^0 \rightarrow \pi^+ \pi^- \pi^0 = 0.004 \pm 0.006$$

$$|\eta_{+-\gamma}| = (2.35 \pm 0.07) \times 10^{-3}$$

$$\phi_{+-\gamma} = (44 \pm 4)^\circ$$

$$|\epsilon'_{+-\gamma}|/\epsilon < 0.3, \text{ CL} = 90\%$$

$\Delta S = -\Delta Q$ in K_{l3}^0 decay

Re $x = -0.002 \pm 0.006$

Im $x = 0.0012 \pm 0.0019$

K_L^0 DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	ρ (MeV/c)
$3\pi^0$	(21.13 \pm 0.27) %	S=1.1	139
$\pi^+ \pi^- \pi^0$	(12.55 \pm 0.20) %	S=1.7	133
$\pi^\pm \mu^\mp \nu_\mu$	[ee] (27.18 \pm 0.25) %	S=1.1	216
Called $K_{\mu 3}^0$.			
$\pi^\pm e^\mp \nu_e$	[ee] (38.78 \pm 0.28) %	S=1.1	229
Called $K_{e 3}^0$.			
2γ	(5.86 \pm 0.15) $\times 10^{-4}$		249
3γ	< 2.4 $\times 10^{-7}$	CL=90%	249
$\pi^0 2\gamma$	[gg] (1.68 \pm 0.10) $\times 10^{-6}$		231
$\pi^0 \pi^\pm e^\mp \nu$	[ee] (5.18 \pm 0.29) $\times 10^{-5}$		207
$(\pi \mu \text{atom})\nu$	(1.06 \pm 0.11) $\times 10^{-7}$		—
$\pi^\pm e^\mp \nu_e \gamma$	[x,ee,gg] (3.62 $\begin{smallmatrix} +0.26 \\ -0.21 \end{smallmatrix}$) $\times 10^{-3}$		229
$\pi^\pm \mu^\mp \nu_\mu \gamma$	(5.7 $\begin{smallmatrix} +0.6 \\ -0.7 \end{smallmatrix}$) $\times 10^{-4}$		—
$\pi^+ \pi^- \gamma$	[x,gg] (4.61 \pm 0.14) $\times 10^{-5}$		206
$\pi^0 \pi^0 \gamma$	< 5.6 $\times 10^{-6}$		209
$\mu^+ \mu^- \gamma$	(3.25 \pm 0.28) $\times 10^{-7}$		225
$e^+ e^- \gamma$	(10.0 \pm 0.5) $\times 10^{-6}$	S=1.5	249
$e^+ e^- \gamma \gamma$	[gg] (6.9 \pm 1.0) $\times 10^{-7}$		249
$\pi^0 \gamma e^+ e^-$	< 7.1 $\times 10^{-7}$	CL=90%	—

**Charge conjugation \times Parity (CP , CPV) or Lepton Family number (LF)
violating modes, or $\Delta S = 1$ weak neutral current ($S1$) modes**

$\pi^+ \pi^-$	CPV	(2.056 \pm 0.033) $\times 10^{-3}$	206
$\pi^0 \pi^0$	CPV	(9.27 \pm 0.19) $\times 10^{-4}$	209
$\mu^+ \mu^-$	$S1$	(7.15 \pm 0.16) $\times 10^{-9}$	225
$e^+ e^-$	$S1$	(9 $\begin{smallmatrix} +6 \\ -4 \end{smallmatrix}$) $\times 10^{-12}$	249
$\pi^+ \pi^- e^+ e^-$	$S1$ [gg]	(3.5 \pm 0.6) $\times 10^{-7}$	206
$\mu^+ \mu^- e^+ e^-$	$S1$	(2.9 $\begin{smallmatrix} +6.7 \\ -2.4 \end{smallmatrix}$) $\times 10^{-9}$	225
$e^+ e^- e^+ e^-$	$S1$	(4.1 \pm 0.8) $\times 10^{-8}$	S=1.2 249
$\pi^0 \mu^+ \mu^-$	$CP, S1 [hh]$	< 5.1 $\times 10^{-9}$	CL=90% 177
$\pi^0 e^+ e^-$	$CP, S1 [hh]$	< 4.3 $\times 10^{-9}$	CL=90% 231
$\pi^0 \nu \bar{\nu}$	$CP, S1 [ii]$	< 5.9 $\times 10^{-7}$	CL=90% 231
$e^\pm \mu^\mp$	LF [ee]	< 4.7 $\times 10^{-12}$	CL=90% 238
$e^\pm e^\pm \mu^\mp \mu^\mp$	LF [ee]	< 6.1 $\times 10^{-9}$	CL=90% —
$\pi^0 \mu^\pm e^\mp$	LF [ee]	< 6.2 $\times 10^{-9}$	CL=90% —

$K^*(892)$

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

$K^*(892)^\pm$ mass $m = 891.66 \pm 0.26$ MeV
 $K^*(892)^0$ mass $m = 896.10 \pm 0.27$ MeV (S = 1.4)
 $K^*(892)^\pm$ full width $\Gamma = 50.8 \pm 0.9$ MeV
 $K^*(892)^0$ full width $\Gamma = 50.7 \pm 0.6$ MeV (S = 1.1)

$K^*(892)$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$K\pi$	~ 100	%	291
$K^0\gamma$	$(2.30 \pm 0.20) \times 10^{-3}$		310
$K^\pm\gamma$	$(9.9 \pm 0.9) \times 10^{-4}$		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 [m]
 Full width $\Gamma = 90 \pm 20$ MeV [m]

$K_1(1270)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\rho$	$(42 \pm 6) \%$	76
$K_0^*(1430)\pi$	$(28 \pm 4) \%$	—
$K^*(892)\pi$	$(16 \pm 5) \%$	301
$K\omega$	$(11.0 \pm 2.0) \%$	—
$Kf_0(1370)$	$(3.0 \pm 2.0) \%$	—

$K_1(1400)$

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

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)
$K^*(892)\pi$	$(94 \pm 6) \%$	401
$K\rho$	$(3.0 \pm 3.0) \%$	298
$Kf_0(1370)$	$(2.0 \pm 2.0) \%$	—
$K\omega$	$(1.0 \pm 1.0) \%$	285
$K_0^*(1430)\pi$	not seen	—

$K^*(1410)$

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

Mass $m = 1414 \pm 15$ MeV (S = 1.3)

Full width $\Gamma = 232 \pm 21$ MeV (S = 1.1)

$K^*(1410)$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$K^*(892)\pi$	> 40 %	95%	408
$K\pi$	(6.6 ± 1.3) %		611
$K\rho$	< 7 %	95%	309

$K_0^*(1430)$ [ij]

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

Mass $m = 1412 \pm 6$ MeV

Full width $\Gamma = 294 \pm 23$ MeV

$K_0^*(1430)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\pi$	(93 ± 10) %	621

$K_2^*(1430)$

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

$K_2^*(1430)^\pm$ mass $m = 1425.6 \pm 1.5$ MeV (S = 1.1)

$K_2^*(1430)^0$ mass $m = 1432.4 \pm 1.3$ MeV

$K_2^*(1430)^\pm$ full width $\Gamma = 98.5 \pm 2.7$ MeV (S = 1.1)

$K_2^*(1430)^0$ full width $\Gamma = 109 \pm 5$ MeV (S = 1.9)

$K_2^*(1430)$ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
$K\pi$	(49.9 ± 1.2) %		622
$K^*(892)\pi$	(24.7 ± 1.5) %		423
$K^*(892)\pi\pi$	(13.4 ± 2.2) %		375
$K\rho$	(8.7 ± 0.8) %	S=1.2	331
$K\omega$	(2.9 ± 0.8) %		319
$K^+\gamma$	(2.4 ± 0.5) $\times 10^{-3}$	S=1.1	627
$K\eta$	($1.5^{+3.4}_{-1.0}$) $\times 10^{-3}$	S=1.3	492
$K\omega\pi$	< 7.2 $\times 10^{-4}$	CL=95%	110
$K^0\gamma$	< 9 $\times 10^{-4}$	CL=90%	631

$K^*(1680)$

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

Mass $m = 1717 \pm 27$ MeV (S = 1.4)

Full width $\Gamma = 322 \pm 110$ MeV (S = 4.2)

$K^*(1680)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\pi$	$(38.7 \pm 2.5) \%$	779
$K\rho$	$(31.4^{+4.7}_{-2.1}) \%$	571
$K^*(892)\pi$	$(29.9^{+2.2}_{-4.7}) \%$	615

$K_2(1770)$ ^[kk]

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

Mass $m = 1773 \pm 8$ MeV

Full width $\Gamma = 186 \pm 14$ MeV

$K_2(1770)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\pi\pi$		—
$K_2^*(1430)\pi$	dominant	287
$K^*(892)\pi$	seen	653
$Kf_2(1270)$	seen	—
$K\phi$	seen	441
$K\omega$	seen	608

$K_3^*(1780)$

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

Mass $m = 1776 \pm 7$ MeV (S = 1.1)

Full width $\Gamma = 159 \pm 21$ MeV (S = 1.3)

$K_3^*(1780)$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
$K\rho$	$(31 \pm 9) \%$		612
$K^*(892)\pi$	$(20 \pm 5) \%$		651
$K\pi$	$(18.8 \pm 1.0) \%$		810
$K\eta$	$(30 \pm 13) \%$		715
$K_2^*(1430)\pi$	< 16 %	95%	284

$K_2(1820)$ [1]

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

Mass $m = 1816 \pm 13$ MeV

Full width $\Gamma = 276 \pm 35$ MeV

$K_2(1820)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K_2^*(1430)\pi$	seen	325
$K^*(892)\pi$	seen	680
$K f_2(1270)$	seen	186
$K\omega$	seen	638

$K_4^*(2045)$

$$I(J^P) = \frac{1}{2}(4^+)$$

Mass $m = 2045 \pm 9$ MeV ($S = 1.1$)

Full width $\Gamma = 198 \pm 30$ MeV

$K_4^*(2045)$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$K\pi$	$(9.9 \pm 1.2) \%$	958
$K^*(892)\pi\pi$	$(9 \pm 5) \%$	800
$K^*(892)\pi\pi\pi$	$(7 \pm 5) \%$	764
$\rho K\pi$	$(5.7 \pm 3.2) \%$	742
$\omega K\pi$	$(5.0 \pm 3.0) \%$	736
$\phi K\pi$	$(2.8 \pm 1.4) \%$	591
$\phi K^*(892)$	$(1.4 \pm 0.7) \%$	363