

# BOTTOM, STRANGE MESONS ( $B = \pm 1$ , $S = \mp 1$ )

$$B_s^0 = s\bar{b}, \bar{B}_s^0 = \bar{s}b, \text{ similarly for } B_s^{*+}$$

$B_s^0$

$$I(J^P) = 0(0^-)$$

$I$ ,  $J$ ,  $P$  need confirmation. Quantum numbers shown are quark-model predictions.

$$\text{Mass } m_{B_s^0} = 5366.88 \pm 0.14 \text{ MeV}$$

$$m_{B_s^0} - m_B = 87.38 \pm 0.16 \text{ MeV}$$

$$\text{Mean life } \tau = (1.515 \pm 0.004) \times 10^{-12} \text{ s}$$

$$c\tau = 454.2 \mu\text{m}$$

$$\Delta\Gamma_{B_s^0} = \Gamma_{B_{sL}^0} - \Gamma_{B_{sH}^0} = (0.085 \pm 0.004) \times 10^{12} \text{ s}^{-1}$$

## $B_s^0$ - $\bar{B}_s^0$ mixing parameters

$$\begin{aligned} \Delta m_{B_s^0} &= m_{B_{sH}^0} - m_{B_{sL}^0} = (17.749 \pm 0.020) \times 10^{12} \hbar \text{ s}^{-1} \\ &= (1.1683 \pm 0.0013) \times 10^{-8} \text{ MeV} \end{aligned}$$

$$x_s = \Delta m_{B_s^0} / \Gamma_{B_s^0} = 26.89 \pm 0.07$$

$$\chi_s = 0.499312 \pm 0.000004$$

## CP violation parameters in $B_s^0$

$$\text{Re}(\epsilon_{B_s^0}) / (1 + |\epsilon_{B_s^0}|^2) = (-0.15 \pm 0.70) \times 10^{-3}$$

$$C_{KK}(B_s^0 \rightarrow K^+ K^-) = 0.14 \pm 0.11$$

$$S_{KK}(B_s^0 \rightarrow K^+ K^-) = 0.30 \pm 0.13$$

$$r_B(B_s^0 \rightarrow D_s^\mp K^\pm) = 0.37^{+0.10}_{-0.09}$$

$$\delta_B(B_s^0 \rightarrow D_s^\pm K^\mp) = (358 \pm 14)^\circ$$

$$CP \text{ Violation phase } \beta_s = (2.55 \pm 1.15) \times 10^{-2} \text{ rad}$$

$$|\lambda| (B_s^0 \rightarrow J/\psi(1S)\phi) = 1.012 \pm 0.017$$

$$|\lambda| = 0.999 \pm 0.017$$

$$A, CP \text{ violation parameter} = -0.75 \pm 0.12$$

$$C, CP \text{ violation parameter} = 0.19 \pm 0.06$$

$$S, CP \text{ violation parameter} = 0.17 \pm 0.06$$

$$A_{CP}^L(B_s \rightarrow J/\psi \bar{K}^*(892)^0) = -0.05 \pm 0.06$$

$$A_{CP}^{\parallel}(B_s \rightarrow J/\psi \bar{K}^*(892)^0) = 0.17 \pm 0.15$$

$$A_{CP}^{\perp}(B_s \rightarrow J/\psi \bar{K}^*(892)^0) = -0.05 \pm 0.10$$

$$A_{CP}(B_s \rightarrow \pi^+ K^-) = 0.221 \pm 0.015$$

$$A_{CP}(B_s^0 \rightarrow [K^+ K^-]_D \bar{K}^*(892)^0) = -0.04 \pm 0.07$$

$$\begin{aligned}
A_{CP}(B_s^0 \rightarrow [\pi^+ K^-]_D K^*(892)^0) &= -0.01 \pm 0.04 \\
A_{CP}(B_s^0 \rightarrow [\pi^+ \pi^-]_D K^*(892)^0) &= 0.06 \pm 0.13 \\
S(B_s^0 \rightarrow \phi \gamma) &= 0.43 \pm 0.32 \\
C(B_s^0 \rightarrow \phi \gamma) &= 0.11 \pm 0.31 \\
A^\Delta(B_s \rightarrow \phi \gamma) &= -0.7 \pm 0.4 \\
\Delta a_\perp < 1.2 \times 10^{-12} \text{ GeV}, \text{ CL} &= 95\% \\
\Delta a_\parallel &= (-0.9 \pm 1.5) \times 10^{-14} \text{ GeV} \\
\Delta a_X &= (1.0 \pm 2.2) \times 10^{-14} \text{ GeV} \\
\Delta a_Y &= (-3.8 \pm 2.2) \times 10^{-14} \text{ GeV} \\
\text{Re}(\xi) &= -0.022 \pm 0.033 \\
\text{Im}(\xi) &= 0.004 \pm 0.011
\end{aligned}$$

These branching fractions all scale with  $B(\bar{b} \rightarrow B_s^0)$ .

The branching fraction  $B(B_s^0 \rightarrow D_s^- \ell^+ \nu_\ell \text{anything})$  is not a pure measurement since the measured product branching fraction  $B(\bar{b} \rightarrow B_s^0) \times B(B_s^0 \rightarrow D_s^- \ell^+ \nu_\ell \text{anything})$  was used to determine  $B(\bar{b} \rightarrow B_s^0)$ , as described in the note on “ $B^0$ - $\bar{B}^0$  Mixing”

For inclusive branching fractions, e.g.,  $B \rightarrow D^\pm \text{anything}$ , the values usually are multiplicities, not branching fractions. They can be greater than one.

$B_s^0$ DECAY MODES	Fraction ( $\Gamma_i/\Gamma$ )	Scale factor/ Confidence level	$p$
$D_s^- \text{anything}$	(93 $\pm$ 25) %		—
$\ell \nu_\ell X$	( 9.6 $\pm$ 0.8 ) %		—
$e^+ \nu X^-$	( 9.1 $\pm$ 0.8 ) %		—
$\mu^+ \nu X^-$	(10.2 $\pm$ 1.0 ) %		—
$D_s^- \ell^+ \nu_\ell \text{anything}$	[a] ( 8.1 $\pm$ 1.3 ) %		—
$D_s^* - \ell^+ \nu_\ell \text{anything}$	( 5.4 $\pm$ 1.1 ) %		—
$D_{s1}(2536)^- \mu^+ \nu_\mu, D_{s1}^- \rightarrow D^{*-} K_S^0$	( 2.7 $\pm$ 0.7 ) $\times 10^{-3}$		—
$D_{s1}(2536)^- X \mu^+ \nu, D_{s1}^- \rightarrow \overline{D}^0 K^+$	( 4.4 $\pm$ 1.3 ) $\times 10^{-3}$		—
$D_{s2}(2573)^- X \mu^+ \nu, D_{s2}^- \rightarrow \overline{D}^0 K^+$	( 2.7 $\pm$ 1.0 ) $\times 10^{-3}$		—
$D_s^- \pi^+$	( 3.00 $\pm$ 0.23 ) $\times 10^{-3}$		2320
$D_s^- \rho^+$	( 6.9 $\pm$ 1.4 ) $\times 10^{-3}$		2249
$D_s^- \pi^+ \pi^+ \pi^-$	( 6.1 $\pm$ 1.0 ) $\times 10^{-3}$		2301
$D_{s1}(2536)^- \pi^+, D_{s1}^- \rightarrow D_s^- \pi^+ \pi^-$	( 2.5 $\pm$ 0.8 ) $\times 10^{-5}$		—
$D_s^\mp K^\pm$	( 2.27 $\pm$ 0.19 ) $\times 10^{-4}$		2293

$D_s^- K^+ \pi^+ \pi^-$	$(3.2 \pm 0.6) \times 10^{-4}$	2249
$D_s^+ D_s^-$	$(4.4 \pm 0.5) \times 10^{-3}$	1824
$D_s^- D^+$	$(2.8 \pm 0.5) \times 10^{-4}$	1875
$D^+ D^-$	$(2.2 \pm 0.6) \times 10^{-4}$	1925
$D^0 \bar{D}^0$	$(1.9 \pm 0.5) \times 10^{-4}$	1930
$D_s^{*-} \pi^+$	$(2.0 \pm 0.5) \times 10^{-3}$	2265
$D_s^{*\mp} K^\pm$	$(1.33 \pm 0.35) \times 10^{-4}$	—
$D_s^{*-} \rho^+$	$(9.6 \pm 2.1) \times 10^{-3}$	2191
$D_s^{*+} D_s^- + D_s^{*-} D_s^+$	$(1.39 \pm 0.17) \%$	1742
$D_s^{*+} D_s^{*-}$	$(1.44 \pm 0.21) \%$	S=1.1 1655
$D_s^{(*)+} D_s^{(*)-}$	$(4.5 \pm 1.4) \%$	—
$\bar{D}^*{}^0 \bar{K}^0$	$(2.8 \pm 1.1) \times 10^{-4}$	2278
$\bar{D}^0 \bar{K}^0$	$(4.3 \pm 0.9) \times 10^{-4}$	2330
$\bar{D}^0 K^- \pi^+$	$(1.04 \pm 0.13) \times 10^{-3}$	2312
$\bar{D}^0 \bar{K}^*(892)^0$	$(4.4 \pm 0.6) \times 10^{-4}$	2264
$\bar{D}^0 \bar{K}^*(1410)$	$(3.9 \pm 3.5) \times 10^{-4}$	2117
$\bar{D}^0 \bar{K}_0^*(1430)$	$(3.0 \pm 0.7) \times 10^{-4}$	2113
$\bar{D}^0 \bar{K}_2^*(1430)$	$(1.1 \pm 0.4) \times 10^{-4}$	2112
$\bar{D}^0 \bar{K}^*(1680)$	$< 7.8 \times 10^{-5}$	CL=90% 1997
$\bar{D}^0 \bar{K}_0^*(1950)$	$< 1.1 \times 10^{-4}$	CL=90% 1890
$\bar{D}^0 \bar{K}_3^*(1780)$	$< 2.6 \times 10^{-5}$	CL=90% 1971
$\bar{D}^0 \bar{K}_4^*(2045)$	$< 3.1 \times 10^{-5}$	CL=90% 1835
$\bar{D}^0 K^- \pi^+ (\text{non-resonant})$	$(2.1 \pm 0.8) \times 10^{-4}$	2312
$D_{s2}^*(2573)^- \pi^+, D_{s2}^* \rightarrow \bar{D}^0 K^-$	$(2.6 \pm 0.4) \times 10^{-4}$	—
$D_{s1}^*(2700)^- \pi^+, D_{s1}^* \rightarrow \bar{D}^0 K^-$	$(1.6 \pm 0.8) \times 10^{-5}$	—
$D_{s1}^*(2860)^- \pi^+, D_{s1}^* \rightarrow \bar{D}^0 K^-$	$(5 \pm 4) \times 10^{-5}$	—
$D_{s3}^*(2860)^- \pi^+, D_{s3}^* \rightarrow \bar{D}^0 K^-$	$(2.2 \pm 0.6) \times 10^{-5}$	—
$\bar{D}^0 K^+ K^-$	$(5.5 \pm 0.8) \times 10^{-5}$	2243
$\bar{D}^0 f_0(980)$	$< 3.1 \times 10^{-6}$	CL=90% 2242
$\bar{D}^0 \phi$	$(3.0 \pm 0.5) \times 10^{-5}$	2235
$\bar{D}^{*0} \phi$	$(3.7 \pm 0.6) \times 10^{-5}$	2178
$D^{*\mp} \pi^\pm$	$< 6.1 \times 10^{-6}$	CL=90% —
$\eta_c \phi$	$(5.0 \pm 0.9) \times 10^{-4}$	1663
$\eta_c \pi^+ \pi^-$	$(1.8 \pm 0.7) \times 10^{-4}$	1840
$J/\psi(1S) \phi$	$(1.08 \pm 0.08) \times 10^{-3}$	1588
$J/\psi(1S) \phi \phi$	$(1.24^{+0.17}_{-0.19}) \times 10^{-5}$	764
$J/\psi(1S) \pi^0$	$< 1.2 \times 10^{-3}$	CL=90% 1787
$J/\psi(1S) \eta$	$(4.0 \pm 0.7) \times 10^{-4}$	S=1.4 1733

$J/\psi(1S)K_S^0$	$(1.88 \pm 0.15) \times 10^{-5}$	1743
$J/\psi(1S)\bar{K}^*(892)^0$	$(4.1 \pm 0.4) \times 10^{-5}$	1637
$J/\psi(1S)\eta'$	$(3.3 \pm 0.4) \times 10^{-4}$	1612
$J/\psi(1S)\pi^+\pi^-$	$(2.09 \pm 0.23) \times 10^{-4}$	S=1.3
$J/\psi(1S)f_0(500), f_0 \rightarrow \pi^+\pi^-$	$< 4 \times 10^{-6}$	CL=90% —
$J/\psi(1S)\rho, \rho \rightarrow \pi^+\pi^-$	$< 4 \times 10^{-6}$	CL=90% —
$J/\psi(1S)f_0(980), f_0 \rightarrow \pi^+\pi^-$	$(1.28 \pm 0.18) \times 10^{-4}$	S=1.7 —
$J/\psi(1S)f_2(1270), f_2 \rightarrow \pi^+\pi^-$	$(1.1 \pm 0.4) \times 10^{-6}$	—
$J/\psi(1S)f_2(1270)_0, f_2 \rightarrow \pi^+\pi^-$	$(7.5 \pm 1.8) \times 10^{-7}$	—
$J/\psi(1S)f_2(1270)_{  }, f_2 \rightarrow \pi^+\pi^-$	$(1.09 \pm 0.34) \times 10^{-6}$	—
$J/\psi(1S)f_2(1270)_{\perp}, f_2 \rightarrow \pi^+\pi^-$	$(1.3 \pm 0.8) \times 10^{-6}$	—
$J/\psi(1S)f_0(1370), f_0 \rightarrow \pi^+\pi^-$	$(4.5 \pm 0.7) \times 10^{-5}$	—
$J/\psi(1S)f_0(1500), f_0 \rightarrow \pi^+\pi^-$	$(2.11 \pm 0.40) \times 10^{-5}$	—
$J/\psi(1S)f'_2(1525)_0, f'_2 \rightarrow \pi^+\pi^-$	$(1.07 \pm 0.24) \times 10^{-6}$	—
$J/\psi(1S)f'_2(1525)_{  }, f'_2 \rightarrow \pi^+\pi^-$	$(1.3 \pm 2.7) \times 10^{-7}$	—
$J/\psi(1S)f'_2(1525)_{\perp}, f'_2 \rightarrow \pi^+\pi^-$	$(5 \pm 4) \times 10^{-7}$	—
$J/\psi(1S)f_0(1790), f_0 \rightarrow \pi^+\pi^-$	$(5.0 \pm 11.0) \times 10^{-6}$	—
$J/\psi(1S)\pi^+\pi^- (\text{nonresonant})$	$(1.8 \pm 1.1) \times 10^{-5}$	1775
$J/\psi(1S)\bar{K}^0\pi^+\pi^-$	$< 4.4 \times 10^{-5}$	CL=90% 1675
$J/\psi(1S)K^+K^-$	$(7.9 \pm 0.7) \times 10^{-4}$	1601
$J/\psi(1S)K^0K^-\pi^+ + \text{c.c.}$	$(9.2 \pm 1.3) \times 10^{-4}$	1538
$J/\psi(1S)\bar{K}^0K^+K^-$	$< 1.2 \times 10^{-5}$	CL=90% 1333
$J/\psi(1S)f'_2(1525)$	$(2.6 \pm 0.6) \times 10^{-4}$	1310
$J/\psi(1S)\rho\bar{\rho}$	$(3.6 \pm 0.4) \times 10^{-6}$	982
$J/\psi(1S)\gamma$	$< 7.3 \times 10^{-6}$	CL=90% 1790
$J/\psi(1S)\pi^+\pi^-\pi^+\pi^-$	$(7.8 \pm 1.0) \times 10^{-5}$	1731
$J/\psi(1S)f_1(1285)$	$(7.2 \pm 1.4) \times 10^{-5}$	1460
$\psi(2S)\eta$	$(3.3 \pm 0.9) \times 10^{-4}$	1338
$\psi(2S)\eta'$	$(1.29 \pm 0.35) \times 10^{-4}$	1158
$\psi(2S)\pi^+\pi^-$	$(7.1 \pm 1.3) \times 10^{-5}$	1397
$\psi(2S)\phi$	$(5.4 \pm 0.6) \times 10^{-4}$	1120
$\psi(2S)K^-\pi^+$	$(3.1 \pm 0.4) \times 10^{-5}$	1310

$\psi(2S)\bar{K}^*(892)^0$	( 3.3 ± 0.5 ) × 10 <sup>-5</sup>	1196
$\chi_{c1}\phi$	( 2.04 ± 0.30 ) × 10 <sup>-4</sup>	1274
$\pi^+\pi^-$	( 7.0 ± 1.0 ) × 10 <sup>-7</sup>	2680
$\pi^0\pi^0$	< 2.1 × 10 <sup>-4</sup>	CL=90% 2680
$\eta\pi^0$	< 1.0 × 10 <sup>-3</sup>	CL=90% 2654
$\eta\eta$	< 1.5 × 10 <sup>-3</sup>	CL=90% 2627
$\rho^0\rho^0$	< 3.20 × 10 <sup>-4</sup>	CL=90% 2569
$\eta'\eta'$	( 3.3 ± 0.7 ) × 10 <sup>-5</sup>	2507
$\eta'\phi$	< 8.2 × 10 <sup>-7</sup>	CL=90% 2495
$\phi f_0(980), f_0(980) \rightarrow \pi^+\pi^-$	( 1.12 ± 0.21 ) × 10 <sup>-6</sup>	—
$\phi f_2(1270), f_2(1270) \rightarrow \pi^+\pi^-$	( 6.1 + 1.8 - 1.5 ) × 10 <sup>-7</sup>	—
$\phi\rho^0$	( 2.7 ± 0.8 ) × 10 <sup>-7</sup>	2526
$\phi\pi^+\pi^-$	( 3.5 ± 0.5 ) × 10 <sup>-6</sup>	2579
$\phi\phi$	( 1.87 ± 0.15 ) × 10 <sup>-5</sup>	2482
$\phi\phi\phi$	( 2.2 ± 0.7 ) × 10 <sup>-6</sup>	2165
$\pi^+K^-$	( 5.8 ± 0.7 ) × 10 <sup>-6</sup>	2659
$K^+K^-$	( 2.66 ± 0.22 ) × 10 <sup>-5</sup>	2638
$K^0\bar{K}^0$	( 2.0 ± 0.6 ) × 10 <sup>-5</sup>	2637
$K^0\pi^+\pi^-$	( 9.5 ± 2.1 ) × 10 <sup>-6</sup>	2653
$K^0K^\pm\pi^\mp$	( 8.4 ± 0.9 ) × 10 <sup>-5</sup>	2622
$K^*(892)^-\pi^+$	( 2.9 ± 1.1 ) × 10 <sup>-6</sup>	2607
$K^*(892)^\pm K^\mp$	( 1.9 ± 0.5 ) × 10 <sup>-5</sup>	2585
$K_0^*(1430)^\pm K^\mp$	( 3.1 ± 2.5 ) × 10 <sup>-5</sup>	—
$K_2^*(1430)^\pm K^\mp$	( 1.0 ± 1.7 ) × 10 <sup>-5</sup>	—
$K^*(892)^0\bar{K}^0 + \text{c.c.}$	( 2.0 ± 0.6 ) × 10 <sup>-5</sup>	2585
$K_0^*(1430)\bar{K}^0 + \text{c.c.}$	( 3.3 ± 1.0 ) × 10 <sup>-5</sup>	2468
$K_2^*(1430)^0\bar{K}^0 + \text{c.c.}$	( 1.7 ± 2.2 ) × 10 <sup>-5</sup>	2467
$K_S^0\bar{K}^*(892)^0 + \text{c.c.}$	( 1.6 ± 0.4 ) × 10 <sup>-5</sup>	2585
$K^0K^+K^-$	( 1.3 ± 0.6 ) × 10 <sup>-6</sup>	2568
$\bar{K}^*(892)^0\rho^0$	< 7.67 × 10 <sup>-4</sup>	CL=90% 2550
$\bar{K}^*(892)^0K^*(892)^0$	( 1.11 ± 0.27 ) × 10 <sup>-5</sup>	2531
$\phi K^*(892)^0$	( 1.14 ± 0.30 ) × 10 <sup>-6</sup>	2507
$p\bar{p}$	< 1.5 × 10 <sup>-8</sup>	CL=90% 2514
$p\bar{p}K^+K^-$	( 4.5 ± 0.5 ) × 10 <sup>-6</sup>	2231
$p\bar{p}K^+\pi^-$	( 1.39 ± 0.26 ) × 10 <sup>-6</sup>	2355
$p\bar{p}\pi^+\pi^-$	( 4.3 ± 2.0 ) × 10 <sup>-7</sup>	2454
$p\bar{\Lambda}K^- + \text{c.c.}$	( 5.5 ± 1.0 ) × 10 <sup>-6</sup>	2358
$\Lambda_c^-\Lambda\pi^+$	( 3.6 ± 1.6 ) × 10 <sup>-4</sup>	1979
$\Lambda_c^-\Lambda_c^+$	< 8.0 × 10 <sup>-5</sup>	CL=95% 1405

## Lepton Family number (*LF*) violating modes or $\Delta B = 1$ weak neutral current (*B1*) modes

$\gamma\gamma$	<i>B1</i>	< 3.1	$\times 10^{-6}$	CL=90%	2683
$\phi\gamma$	<i>B1</i>	( 3.4 $\pm$ 0.4 )	$\times 10^{-5}$		2587
$\mu^+\mu^-$	<i>B1</i>	( 3.0 $\pm$ 0.4 )	$\times 10^{-9}$		2681
$e^+e^-$	<i>B1</i>	< 2.8	$\times 10^{-7}$	CL=90%	2683
$\tau^+\tau^-$	<i>B1</i>	< 6.8	$\times 10^{-3}$	CL=95%	2011
$\mu^+\mu^-\mu^+\mu^-$	<i>B1</i>	< 2.5	$\times 10^{-9}$	CL=95%	2673
$SP, S \rightarrow \mu^+\mu^-$	<i>B1</i>	[ <i>b</i> ] < 2.2	$\times 10^{-9}$	CL=95%	—
$P \rightarrow \mu^+\mu^-$					
$\phi(1020)\mu^+\mu^-$	<i>B1</i>	( 8.2 $\pm$ 1.2 )	$\times 10^{-7}$		2582
$\bar{K}^*(892)^0\mu^+\mu^-$		( 2.9 $\pm$ 1.1 )	$\times 10^{-8}$		2605
$\pi^+\pi^-\mu^+\mu^-$	<i>B1</i>	( 8.4 $\pm$ 1.7 )	$\times 10^{-8}$		2670
$\phi\nu\bar{\nu}$	<i>B1</i>	< 5.4	$\times 10^{-3}$	CL=90%	2587
$e^\pm\mu^\mp$	<i>LF</i>	[ <i>c</i> ] < 5.4	$\times 10^{-9}$	CL=90%	2682
$\mu^\pm\tau^\mp$		< 4.2	$\times 10^{-5}$	CL=95%	2388

 **$B_s^*$** 

$$I(J^P) = 0(1^-)$$

*I, J, P* need confirmation. Quantum numbers shown are quark-model predictions.

$$\text{Mass } m = 5415.4^{+1.8}_{-1.5} \text{ MeV } (S = 2.9)$$

$$m_{B_s^*} - m_{B_s} = 48.6^{+1.8}_{-1.5} \text{ MeV } (S = 2.9)$$

<b><math>B_s^*</math> DECAY MODES</b>	Fraction ( $\Gamma_i/\Gamma$ )	<i>p</i> (MeV/c)
$B_s\gamma$	seen	48

 **$B_{s1}(5830)^0$** 

$$I(J^P) = 0(1^+)$$

*I, J, P* need confirmation.

$$\text{Mass } m = 5828.70 \pm 0.20 \text{ MeV}$$

$$m_{B_{s1}^0} - m_{B^{*+}} = 504.00 \pm 0.17 \text{ MeV}$$

$$\text{Full width } \Gamma = 0.5 \pm 0.4 \text{ MeV}$$

<b><math>B_{s1}(5830)^0</math> DECAY MODES</b>	Fraction ( $\Gamma_i/\Gamma$ )	<i>p</i> (MeV/c)
$B^{*+} K^-$	seen	97

**$B_{s2}^*(5840)^0$**  $I(J^P) = 0(2^+)$  $I, J, P$  need confirmation.Mass  $m = 5839.86 \pm 0.12$  MeV $m_{B_{s2}^{*0}} - m_{B^+} = 560.52 \pm 0.14$  MeVFull width  $\Gamma = 1.49 \pm 0.27$  MeV

<b><math>B_{s2}^*(5840)^0</math> DECAY MODES</b>	Fraction ( $\Gamma_i/\Gamma$ )	$p$ (MeV/c)
$B^+ K^-$	<b>DEFINED AS 1</b>	252
$B^{*+} K^-$	$0.093 \pm 0.018$	141
$B^0 K_S^0$	$0.43 \pm 0.11$	245
$B^{*0} K_S^0$	$0.04 \pm 0.04$	—

## NOTES

[a] Not a pure measurement. See note at head of  $B_s^0$  Decay Modes.

[b] Here  $S$  and  $P$  are the hypothetical scalar and pseudoscalar particles with masses of  $2.5$  GeV/ $c^2$  and  $214.3$  MeV/ $c^2$ , respectively.

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