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

$B_s^0 = s\overline{b}$, $\overline{B}_s^0 = \overline{s}\,b$, similarly for B_s^*'s

B_s^0

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

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

Mass $m_{B_s^0} = 5366.92 \pm 0.10$ MeV

$m_{B_s^0} - m_B = 87.42 \pm 0.14$ MeV

Mean life $\tau = (1.521 \pm 0.005) \times 10^{-12}$ s

$c\tau = 456.0\ \mu$m

$\Delta\Gamma_{B_s^0} = \Gamma_{B_{sL}^0} - \Gamma_{B_{sH}^0} = (0.083 \pm 0.005) \times 10^{12}\ \text{s}^{-1}$ (S = 1.7)

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

$\Delta m_{B_s^0} = m_{B_{sH}^0} - m_{B_{sL}^0} = (17.765 \pm 0.006) \times 10^{12}\ \hbar\ \text{s}^{-1}$

$= (1.1693 \pm 0.0004) \times 10^{-8}$ MeV

$x_s = \Delta m_{B_s^0}/\Gamma_{B_s^0} = 27.03 \pm 0.09$

χ_s (B_s^0-$\overline{B}_s^0$ mixing parameter) $= 0.499319 \pm 0.000005$

CP violation parameters in B_s^0

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

$C_{KK}(B_s^0 \to K^+K^-) = 0.162 \pm 0.035$

$S_{KK}(B_s^0 \to K^+K^-) = 0.14 \pm 0.05$ (S = 1.3)

$\text{r}_B(B_s^0 \to D_s^\mp K^\pm) = 0.37^{+0.10}_{-0.09}$

$\text{r}_B(B_s^0 \to D_s^\mp K^\pm \pi^\pm \pi^\mp) = 0.47 \pm 0.08$

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

$\delta_B(B_s^0 \to D_s^\pm K^\mp \pi^\pm \pi^\mp) = (-6^{+10}_{-13})^\circ$

CP Violation phase $\beta_s = (2.5 \pm 1.0) \times 10^{-2}$ rad

$|\lambda|$ ($B_s^0 \to J/\psi(1S)\phi$) $= 1.001 \pm 0.018$ (S = 1.2)

$|\lambda| = 0.999 \pm 0.017$

A, *CP* violation parameter $= -0.79 \pm 0.08$

C, *CP* violation parameter $= 0.19 \pm 0.06$

S, *CP* violation parameter $= 0.17 \pm 0.06$

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

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

$A_{CP}^{\perp}(B_s \to J/\psi \overline{K}^*(892)^0) = -0.05 \pm 0.10$
$A_{CP}(B_s \to \pi^+ K^-) = 0.224 \pm 0.012$
$A_{CP}(B_s^0 \to [K^+K^-]_D \overline{K}^*(892)^0) = -0.04 \pm 0.07$
$A_{CP}(B_s^0 \to [\pi^+K^-]_D K^*(892)^0) = -0.01 \pm 0.04$
$A_{CP}(B_s^0 \to [\pi^+\pi^-]_D K^*(892)^0) = 0.06 \pm 0.13$
$S(B_s^0 \to \phi\gamma) = 0.43 \pm 0.32$
$C(B_s^0 \to \phi\gamma) = 0.11 \pm 0.31$
$A^{\Delta}(B_s^0 \to \phi\gamma) = -0.7 \pm 0.4$
$\Delta a_{\perp} < 1.2 \times 10^{-12}$ GeV, CL = 95%
$\Delta a_{\parallel} = (-0.9 \pm 1.5) \times 10^{-14}$ GeV
$\Delta a_X = (1.0 \pm 2.2) \times 10^{-14}$ GeV
$\Delta a_Y = (-3.8 \pm 2.2) \times 10^{-14}$ GeV
$\mathrm{Re}(\xi) = -0.022 \pm 0.033$
$\mathrm{Im}(\xi) = 0.004 \pm 0.011$

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

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

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

B_s^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
D_s^- anything		(62 ± 6) %		–
$\ell\nu_\ell X$		(9.6 ± 0.8) %		–
$e^+\nu X^-$		(9.1 ± 0.8) %		–
$\mu^+\nu X^-$		(10.2 ± 1.0) %		–
$D_s^-\ell^+\nu_\ell$ anything	[a]	(8.1 ± 1.3) %		–
$D_s^{*-}\ell^+\nu_\ell$ anything		(5.4 ± 1.1) %		–
$D_s^-\mu^+\nu_\mu$		(2.44± 0.23) %		2321
$D_s^{*-}\mu^+\nu_\mu$		(5.3 ± 0.5) %		2266
$D_{s1}(2536)^-\mu^+\nu_\mu$, $D_{s1}^- \to D^{*-}K_S^0$		(2.7 ± 0.7) $\times 10^{-3}$		–
$D_{s1}(2536)^- X\mu^+\nu$, $D_{s1}^- \to \overline{D}^0 K^+$		(4.4 ± 1.3) $\times 10^{-3}$		–
$D_{s2}(2573)^- X\mu^+\nu$, $D_{s2}^- \to \overline{D}^0 K^+$		(2.7 ± 1.0) $\times 10^{-3}$		–
$K^-\mu^+\nu_\mu$		(1.06± 0.09) $\times 10^{-4}$		2660
$D_s^-\pi^+$		(2.98± 0.14) $\times 10^{-3}$		2320

$D_s^- \rho^+$	$(6.8 \pm 1.4) \times 10^{-3}$		2249
$D_s^- \pi^+ \pi^+ \pi^-$	$(6.1 \pm 1.0) \times 10^{-3}$		2301
$D_{s1}(2536)^- \pi^+$, $D_{s1}^- \to D_s^- \pi^+ \pi^-$	$(2.4 \pm 0.8) \times 10^{-5}$		–
$D_s^\mp K^\pm$	$(2.25 \pm 0.12) \times 10^{-4}$		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
$D^0 \overline{D}^0$	$(1.9 \pm 0.5) \times 10^{-4}$		1930
$D_s^{*-} \pi^+$	$(1.9 \, {}^{+\,0.5}_{-\,0.4}) \times 10^{-3}$		2265
$D_s^{*\mp} K^\pm$	$(1.32 \, {}^{+\,0.40}_{-\,0.32}) \times 10^{-4}$		–
$D_s^{*-} \rho^+$	$(9.5 \pm 2.0) \times 10^{-3}$		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
$D_s^{(*)+} D_s^{(*)-}$	$(4.5 \pm 1.4) \%$		–
$D^{*-} D_s^+$	$(3.9 \pm 0.8) \times 10^{-4}$		1801
$\overline{D}^{*0} \overline{K}^0$	$(2.8 \pm 1.1) \times 10^{-4}$		2278
$\overline{D}^0 \overline{K}^0$	$(4.3 \pm 0.9) \times 10^{-4}$		2330
$\overline{D}^0 K^- \pi^+$	$(1.04 \pm 0.13) \times 10^{-3}$		2312
$\overline{D}^*(2007)^0 K^- \pi^+$	$(7.3 \pm 2.6) \times 10^{-4}$		2259
$\overline{D}^0 \overline{K}^*(892)^0$	$(4.4 \pm 0.6) \times 10^{-4}$		2264
$\overline{D}^0 \overline{K}^*(1410)$	$(3.9 \pm 3.5) \times 10^{-4}$		2117
$\overline{D}^0 \overline{K}_0^*(1430)$	$(3.0 \pm 0.7) \times 10^{-4}$		2113
$\overline{D}^0 \overline{K}_2^*(1430)$	$(1.1 \pm 0.4) \times 10^{-4}$		2112
$\overline{D}^0 \overline{K}^*(1680)$	$< 7.8 \times 10^{-5}$	CL=90%	1997
$\overline{D}^0 \overline{K}_0^*(1950)$	$< 1.1 \times 10^{-4}$	CL=90%	1890
$\overline{D}^0 \overline{K}_3^*(1780)$	$< 2.6 \times 10^{-5}$	CL=90%	1970
$\overline{D}^0 \overline{K}_4^*(2045)$	$< 3.1 \times 10^{-5}$	CL=90%	1835
$\overline{D}^0 K^- \pi^+$ (non-resonant)	$(2.1 \pm 0.8) \times 10^{-4}$		2312
$D_{s2}^*(2573)^- \pi^+$, $D_{s2}^* \to \overline{D}^0 K^-$	$(2.6 \pm 0.4) \times 10^{-4}$		–
$D_{s1}^*(2700)^- \pi^+$, $D_{s1}^* \to \overline{D}^0 K^-$	$(1.6 \pm 0.8) \times 10^{-5}$		–
$D_{s1}^*(2860)^- \pi^+$, $D_{s1}^* \to \overline{D}^0 K^-$	$(5 \pm 4) \times 10^{-5}$		–
$D_{s3}^*(2860)^- \pi^+$, $D_{s3}^* \to \overline{D}^0 K^-$	$(2.2 \pm 0.6) \times 10^{-5}$		–
$\overline{D}^0 K^+ K^-$	$(5.6 \pm 0.9) \times 10^{-5}$		2243
$\overline{D}^0 f_0(980)$	$< 3.1 \times 10^{-6}$	CL=90%	2242
$\overline{D}^0 \phi$	$(3.0 \pm 0.5) \times 10^{-5}$		2235

$\overline{D}^{*0}\phi$	$(\ 3.7\ \pm\ 0.6\ )\times10^{-5}$		2178
$D^{*\mp}\pi^{\pm}$	$<\ 6.1\ \times10^{-6}$	CL=90%	–
$\eta_c\phi$	$(\ 5.0\ \pm\ 0.9\ )\times10^{-4}$		1663
$\eta_c\pi^+\pi^-$	$(\ 1.8\ \pm\ 0.7\ )\times10^{-4}$		1840
$J/\psi(1S)\phi$	$(\ 1.04\pm\ 0.04)\times10^{-3}$		1588
$J/\psi(1S)\phi\phi$	$(\ 1.20^{+\ 0.14}_{-\ 0.16})\times10^{-5}$		764
$J/\psi(1S)\pi^0$	$<\ 1.2\ \times10^{-3}$	CL=90%	1787
$J/\psi(1S)\eta$	$(\ 4.0\ \pm\ 0.7\ )\times10^{-4}$	S=1.4	1733
$J/\psi(1S)K^0_S$	$(\ 1.92\pm\ 0.14)\times10^{-5}$		1743
$J/\psi(1S)\overline{K}^*(892)^0$	$(\ 4.1\ \pm\ 0.4\ )\times10^{-5}$		1637
$J/\psi(1S)\eta'$	$(\ 3.3\ \pm\ 0.4\ )\times10^{-4}$		1612
$J/\psi(1S)\pi^+\pi^-$	$(\ 2.02\pm\ 0.17)\times10^{-4}$	S=1.7	1775
$J/\psi(1S)f_0(500),\ f_0\to\pi^+\pi^-$	$<\ 4\ \times10^{-6}$	CL=90%	–
$J/\psi(1S)\rho,\ \rho\to\pi^+\pi^-$	$<\ 3.4\ \times10^{-6}$	CL=90%	–
$J/\psi(1S)f_0(980),\ f_0\to\pi^+\pi^-$	$(\ 1.24\pm\ 0.15)\times10^{-4}$	S=2.1	–
$J/\psi(1S)f_2(1270),\ f_2\to\pi^+\pi^-$	$(\ 1.0\ \pm\ 0.4\ )\times10^{-6}$		–
$J/\psi(1S)f_2(1270)_0,\ f_2\to\pi^+\pi^-$	$(\ 7.3\ \pm\ 1.7\ )\times10^{-7}$		–
$J/\psi(1S)f_2(1270)_{\parallel},\ f_2\to\pi^+\pi^-$	$(\ 1.05\pm\ 0.33)\times10^{-6}$		–
$J/\psi(1S)f_2(1270)_{\perp},\ f_2\to\pi^+\pi^-$	$(\ 1.3\ \pm\ 0.7\ )\times10^{-6}$		–
$J/\psi(1S)f_0(1370),\ f_0\to\pi^+\pi^-$	$(\ 4.4\ ^{+\ 0.6}_{-\ 4.0}\ )\times10^{-5}$		–
$J/\psi(1S)f_0(1500),\ f_0\to\pi^+\pi^-$	$(\ 2.04^{+\ 0.32}_{-\ 0.24})\times10^{-5}$		–
$J/\psi(1S)f_2'(1525)_0,\ f_2'\to\pi^+\pi^-$	$(\ 1.03\pm\ 0.22)\times10^{-6}$		–
$J/\psi(1S)f_2'(1525)_{\parallel},\ f_2'\to\pi^+\pi^-$	$(\ 1.2\ ^{+\ 2.6}_{-\ 0.8}\ )\times10^{-7}$		–
$J/\psi(1S)f_2'(1525)_{\perp},\ f_2'\to\pi^+\pi^-$	$(\ 5\ \ \pm\ 4\ \ )\times10^{-7}$		–
$J/\psi(1S)f_0(1790),\ f_0\to\pi^+\pi^-$	$(\ 4.9\ ^{+10.0}_{-\ 1.0}\ )\times10^{-6}$		–
$J/\psi(1S)\pi^+\pi^-$ (nonresonant)	$(\ 1.74^{+\ 1.10}_{-\ 0.34})\times10^{-5}$		1775
$J/\psi(1S)\overline{K}^0\pi^+\pi^-$	$<\ 4.4\ \times10^{-5}$	CL=90%	1675
$J/\psi(1S)K^+K^-$	$(\ 7.9\ \pm\ 0.7\ )\times10^{-4}$		1601
$J/\psi(1S)K^0K^-\pi^+ +$ c.c.	$(\ 9.5\ \pm\ 1.3\ )\times10^{-4}$		1538
$J/\psi(1S)\overline{K}^0K^+K^-$	$<\ 1.2\ \times10^{-5}$	CL=90%	1333
$J/\psi K^*(892)^0\overline{K}^*(892)^0$	$(\ 1.10\pm\ 0.09)\times10^{-4}$		1083

$J/\psi(1S)f_2'(1525)$	$(\ 2.6 \pm 0.6\ )\times10^{-4}$		1310
$J/\psi(1S)p\overline{p}$	$(\ 3.6 \pm 0.4\ )\times10^{-6}$		982
$J/\psi(1S)\gamma$	$<\ 7.3 \times10^{-6}$	CL=90%	1790
$J/\psi\mu^+\mu^-,\ J/\psi\to\ \mu^+\mu^-$	$<\ 2.6 \times10^{-9}$	CL=95%	–
$J/\psi(1S)\pi^+\pi^-\pi^+\pi^-$	$(\ 7.5 \pm 0.8\ )\times10^{-5}$		1731
$J/\psi(1S)f_1(1285)$	$(\ 7.2 \pm 1.4\ )\times10^{-5}$		1460
$\psi(2S)\eta$	$(\ 3.3 \pm 0.9\ )\times10^{-4}$		1338
$\psi(2S)\eta'$	$(\ 1.29\pm 0.35)\times10^{-4}$		1158
$\psi(2S)\pi^+\pi^-$	$(\ 6.9 \pm 1.2\ )\times10^{-5}$		1397
$\psi(2S)\phi$	$(\ 5.2 \pm 0.4\ )\times10^{-4}$		1120
$\psi(2S)K^0$	$(\ 1.9 \pm 0.5\ )\times10^{-5}$		1352
$\psi(2S)K^-\pi^+$	$(\ 3.1 \pm 0.4\ )\times10^{-5}$		1310
$\psi(2S)\overline{K}^*(892)^0$	$(\ 3.3 \pm 0.5\ )\times10^{-5}$		1196
$\chi_{c1}\phi$	$(\ 1.97\pm 0.25)\times10^{-4}$		1274
$\chi_{c1}(3872)\phi$	$(\ 1.1 \pm 0.4\ )\times10^{-4}$		936
$\chi_{c1}(3872)(K^+K^-)_{\ non-\phi}$	$(\ 8.6 \pm 3.5\ )\times10^{-5}$		961
$\pi^+\pi^-$	$(\ 7.0 \pm 1.0\ )\times10^{-7}$		2680
$\pi^0\pi^0$	$<\ 2.1 \times10^{-4}$	CL=90%	2680
$\eta\pi^0$	$<\ 1.0 \times10^{-3}$	CL=90%	2654
$\eta\eta$	$<\ 1.43 \times10^{-4}$	CL=90%	2627
$\rho^0\rho^0$	$<\ 3.20 \times10^{-4}$	CL=90%	2569
$\eta' K_S^0$	$<\ 8.16 \times10^{-6}$	CL=90%	2573
$\eta'\eta$	$<\ 6.5 \times10^{-5}$	CL=90%	2568
$\eta'\eta'$	$(\ 3.3 \pm 0.7\ )\times10^{-5}$		2507
$\phi\pi^+\pi^-$	$<\ 8.2 \times10^{-7}$	CL=90%	2495
$\quad\phi f_0(980),\ \ f_0(980)\to\ \pi^+\pi^-$	$(\ 1.12\pm 0.21)\times10^{-6}$		–
$\quad\phi f_2(1270),\ \ f_2(1270)\to\ \pi^+\pi^-$	$(\ 6.1\ ^{+\ 1.8}_{-\ 1.5}\ )\times10^{-7}$		–
$\phi\rho^0$	$(\ 2.7 \pm 0.8\ )\times10^{-7}$		2526
$\quad\phi\pi^+\pi^-$	$(\ 3.5 \pm 0.5\ )\times10^{-6}$		2579
$\phi\phi$	$(\ 1.85\pm 0.14)\times10^{-5}$		2482
$\phi\phi\phi$	$(\ 2.2 \pm 0.6\ )\times10^{-6}$		2165
π^+K^-	$(\ 5.8 \pm 0.7\ )\times10^{-6}$		2659
K^+K^-	$(\ 2.66\pm 0.22)\times10^{-5}$		2638
$K^0\overline{K}^0$	$(\ 1.76\pm 0.31)\times10^{-5}$		2637
$K^0\pi^+\pi^-$	$(\ 9.5 \pm 2.1\ )\times10^{-6}$		2653
$K^0K^\pm\pi^\mp$	$(\ 8.4 \pm 0.9\ )\times10^{-5}$		2622
$K^*(892)^-\pi^+$	$(\ 2.9 \pm 1.1\ )\times10^{-6}$		2607
$K^*(892)^\pm K^\mp$	$(\ 1.9 \pm 0.5\ )\times10^{-5}$		2585
$K_0^*(1430)^\pm K^\mp$	$(\ 3.1 \pm 2.5\ )\times10^{-5}$		–
$K_2^*(1430)^\pm K^\mp$	$(\ 1.0 \pm 1.7\ )\times10^{-5}$		–
$K^*(892)^0\overline{K}^0+$ c.c.	$(\ 2.0 \pm 0.6\ )\times10^{-5}$		2585
$K_0^*(1430)\overline{K}^0+$ c.c.	$(\ 3.3 \pm 1.0\ )\times10^{-5}$		2468
$K_2^*(1430)^0\overline{K}^0+$ c.c.	$(\ 1.7 \pm 2.2\ )\times10^{-5}$		2467

$K^0_S \overline{K}^*(892)^0 +$ c.c.	$(\ 1.6 \pm 0.4\ ) \times 10^{-5}$			2585
$K^0 K^+ K^-$	$(\ 1.3 \pm 0.6\ ) \times 10^{-6}$			2568
$\overline{K}^*(892)^0 \rho^0$	$< 7.67 \times 10^{-4}$		CL=90%	2550
$\overline{K}^*(892)^0 K^*(892)^0$	$(\ 1.11 \pm 0.27) \times 10^{-5}$			2531
$\phi K^*(892)^0$	$(\ 1.14 \pm 0.30) \times 10^{-6}$			2507
$p\overline{p}$	$< 1.5 \times 10^{-8}$		CL=90%	2514
$p\overline{p} K^+ K^-$	$(\ 4.5 \pm 0.5\ ) \times 10^{-6}$			2231
$p\overline{p} K^+ \pi^-$	$(\ 1.39 \pm 0.26) \times 10^{-6}$			2355
$p\overline{p} \pi^+ \pi^-$	$(\ 4.3 \pm 2.0\ ) \times 10^{-7}$			2454
$p\overline{\Lambda} K^-$ + c.c.	$(\ 5.5 \pm 1.0\ ) \times 10^{-6}$			2358
$\Lambda_c^- \Lambda \pi^+$	$(\ 3.6 \pm 1.6\ ) \times 10^{-4}$			1979
$\Lambda_c^- \Lambda_c^+$	$< 8.0 \times 10^{-5}$		CL=95%	1405

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

$\gamma\gamma$	*B1*	$< 3.1 \times 10^{-6}$	CL=90%	2683
$\phi\gamma$	*B1*	$(\ 3.4 \pm 0.4\ ) \times 10^{-5}$		2587
$\mu^+\mu^-$	*B1*	$(\ 3.01 \pm 0.35) \times 10^{-9}$		2681
e^+e^-	*B1*	$< 9.4 \times 10^{-9}$	CL=90%	2683
$\tau^+\tau^-$	*B1*	$< 6.8 \times 10^{-3}$	CL=95%	2011
$\mu^+\mu^-\gamma$		$< 2.0 \times 10^{-9}$		2681
$\mu^+\mu^-\mu^+\mu^-$	*B1*	$< 8.6 \times 10^{-10}$	CL=95%	2673
$SP,\ S \to \mu^+\mu^-,\ P \to \mu^+\mu^-$	*B1*	[*b*] $< 2.2 \times 10^{-9}$	CL=95%	–
$aa,\ a \to \mu^+\mu^-$		$< 5.8 \times 10^{-10}$	CL=95%	–
$\phi(1020)\mu^+\mu^-$	*B1*	$(\ 8.4 \pm 0.4\ ) \times 10^{-7}$		2582
$f_2'(1525)\mu^+\mu^-$		$(\ 1.62 \pm 0.22) \times 10^{-7}$		2464
$\overline{K}^*(892)^0 \mu^+\mu^-$	*B1*	$(\ 2.9 \pm 1.1\ ) \times 10^{-8}$		2605
$\pi^+\pi^-\mu^+\mu^-$	*B1*	$(\ 8.4 \pm 1.7\ ) \times 10^{-8}$		2670
$\phi\nu\overline{\nu}$	*B1*	$< 5.4 \times 10^{-3}$	CL=90%	2587
$e^\pm\mu^\mp$	*LF*	[*c*] $< 5.4 \times 10^{-9}$	CL=90%	2682
$\mu^\pm\tau^\mp$	*LF*	$< 4.2 \times 10^{-5}$	CL=95%	2388

B_s^*

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

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

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

$m_{B_s^*} - m_{B_s} = 48.5^{+1.8}_{-1.5}$ MeV (S = 2.9)

B_s^* DECAY MODES	Fraction (Γ_i/Γ)	*p* (MeV/*c*)
$B_s\gamma$	seen	48

$B_{s1}(5830)^0$

$I(J^P) = 0(1^+)$
I, J, P need confirmation.

Mass $m = 5828.70 \pm 0.20$ MeV
$m_{B^0_{s1}} - m_{B^{*+}} = 503.99 \pm 0.17$ MeV
Full width $\Gamma = 0.5 \pm 0.4$ MeV

$B_{s1}(5830)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (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
$m_{B^{*0}_{s2}} - m_{B^+} = 560.52 \pm 0.14$ MeV
Full width $\Gamma = 1.49 \pm 0.27$ MeV

Branching fractions are given relative to the one **DEFINED AS 1**.

$B^*_{s2}(5840)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
$B^+ K^-$	**DEFINED AS 1**	252
$B^{*+} K^-$	0.093 ± 0.018	141
$B^0 K^0_S$	0.43 ± 0.11	245
$B^{*0} K^0_S$	0.04 ± 0.04	–

NOTES

[*a*] Not a pure measurement. See note at head of B^0_s 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.