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 $m_{B_s^0} = 5369.3 \pm 2.0$ MeV

Mean life $\tau = (1.61^{+0.10}_{-0.09}) \times 10^{-12}$ s

$c\tau = 483\ \mu$m

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

$\chi_s > 0.49$, CL = 95%

χ_B at high energy $= f_d\chi_d + f_s\chi_s = 0.126 \pm 0.008$

$\Delta m_{B_s^0} = m_{B_{sH}^0} - m_{B_{sL}^0} > 5.9 \times 10^{12}\ \hbar\ \mathrm{s}^{-1}$, CL = 95%

$x_s = \Delta m_{B_s^0}/\Gamma_{B_s^0} > 9.5$, CL = 95%

These branching fractions all scale with B($\overline{b} \rightarrow B_s^0$), the LEP B_s^0 production fraction. The first four were evaluated using B($\overline{b} \rightarrow B_s^0$) = $(11.2^{+1.8}_{-1.9})$% and the rest assume B($\overline{b} \rightarrow B_s^0$) = 12%.

The branching fraction B($B_s^0 \rightarrow D_s^- \ell^+ \nu_\ell$ anything) is not a pure measurement since the measured product branching fraction B($\overline{b} \rightarrow B_s^0$) $\times$ B($B_s^0 \rightarrow D_s^- \ell^+ \nu_\ell$ anything) was used to determine B($\overline{b} \rightarrow B_s^0$), as described in the note on "Production and Decay of *b*-Flavored Hadrons."

B_s^0 DECAY MODES		Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
D_s^- anything		(87 ±31) %		–
$D_s^- \ell^+ \nu_\ell$ anything	[*ggg*]	(7.6 ± 2.4) %		–
$D_s^- \pi^+$		< 12 %		2321
$J/\psi(1S)\phi$		< 6 $\times 10^{-3}$		1590
$\psi(2S)\phi$		seen		1122
$\pi^0 \pi^0$		< 2.1 $\times 10^{-4}$	90%	2861
$\eta \pi^0$		< 1.0 $\times 10^{-3}$	90%	2655
$\eta \eta$		< 1.5 $\times 10^{-3}$	90%	2628
$\pi^+ K^-$		< 2.6 $\times 10^{-4}$	90%	2660
$K^+ K^-$		< 1.4 $\times 10^{-4}$	90%	2639
$\Delta B = 1$ weak neutral current (*B1*) modes				
$\gamma\gamma$	*B1*	< 1.48 $\times 10^{-4}$	90%	2685