Light unflavored meson modes					
$\pi^+\pi^-$		< 2.9	$\times 10^{-5}$	90%	2636
$\pi^+\pi^-\pi^0$		< 7.2	$\times 10^{-4}$	90%	2631
$\rho^0\pi^0$		< 4.0	$\times 10^{-4}$	90%	2582
$\rho^\mp\pi^\pm$	[q]	< 5.2	$\times 10^{-4}$	90%	2581
$\pi^+\pi^-\pi^+\pi^-$		< 6.7	$\times 10^{-4}$	90%	2621
$\rho^0\rho^0$		< 2.8	$\times 10^{-4}$	90%	2525
$a_1(1260)^\mp\pi^\pm$	[q]	< 4.9	$\times 10^{-4}$	90%	2494
$a_2(1320)^\mp\pi^\pm$	[q]	< 3.0	$\times 10^{-4}$	90%	2473
$\pi^+\pi^-\pi^0\pi^0$		< 3.1	$\times 10^{-3}$	90%	2622
$\rho^+\rho^-$		< 2.2	$\times 10^{-3}$	90%	2525
$a_1(1260)^0\pi^0$		< 1.1	$\times 10^{-3}$	90%	2494
$\omega\pi^0$		< 4.6	$\times 10^{-4}$	90%	2580
$\eta\pi^0$		< 1.8	$\times 10^{-3}$	90%	2609
$\pi^+\pi^+\pi^-\pi^-\pi^0$		< 9.0	$\times 10^{-3}$	90%	2609
$a_1(1260)^+\rho^-$		< 3.4	$\times 10^{-3}$	90%	2433
$a_1(1260)^0\rho^0$		< 2.4	$\times 10^{-3}$	90%	2433
$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$		< 3.0	$\times 10^{-3}$	90%	2591
$a_1(1260)^+a_1(1260)^-$		< 2.8	$\times 10^{-3}$	90%	2335
$\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$		< 1.1	%	90%	2572
Baryon modes					
$p\overline{p}$		< 3.4	$\times 10^{-5}$	90%	2467
$p\overline{p}\pi^+\pi^-$		< 2.5	$\times 10^{-4}$	90%	2406
$p\overline{\Lambda}\pi^-$		< 1.8	$\times 10^{-4}$	90%	2401
$\Delta^0\overline{\Delta}^0$		< 1.5	$\times 10^{-3}$	90%	2334
$\Delta^{++}\Delta^{--}$		< 1.1	$\times 10^{-4}$	90%	2334
$\overline{\Sigma}_c^{--}\Delta^{++}$		< 1.2	$\times 10^{-3}$	90%	1839
Lepton Family number (*LF*) violating modes, $\Delta B = 2$ forbidden decay via mixing (*B2M*) modes, or $\Delta B = 1$ weak neutral current (*B1*) modes					
e^+e^-	B1	< 5.9	$\times 10^{-6}$	90%	2639
$\mu^+\mu^-$	B1	< 5.9	$\times 10^{-6}$	90%	2637
$K^0e^+e^-$	B1	< 3.0	$\times 10^{-4}$	90%	2616
$K^0\mu^+\mu^-$	B1	< 3.6	$\times 10^{-4}$	90%	2612
$K^*(892)^0e^+e^-$	B1	< 2.9	$\times 10^{-4}$	90%	2563
$K^*(892)^0\mu^+\mu^-$	B1	< 2.3	$\times 10^{-5}$	90%	2559
$e^\pm\mu^\mp$	LF [q]	< 5.9	$\times 10^{-6}$	90%	2638
$e^\pm\tau^\mp$	LF [q]	< 5.3	$\times 10^{-4}$	90%	2340
$\mu^\pm\tau^\mp$	LF [q]	< 8.3	$\times 10^{-4}$	90%	2339

B^*

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

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

Mass $m_{B^*} = 5324.8 \pm 2.1$ MeV

$m_{B^*} - m_B = 46.0 \pm 0.6$ MeV

BOTTOM, STRANGE MESONS ($B = \pm1$, $S = \mp1$)

$B_s^0 = s\overline{b}$, $\overline{B}_s^0 = \overline{s}\,b$, 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 $m_{B_s^0} = 5375 \pm 6$ MeV (S = 1.3)

Mean life $\tau = (1.34^{+0.32}_{-0.27}) \times 10^{-12}$ s (S = 1.4)

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

$\chi_s = 0.62 \pm 0.13$

$\Delta m_{B_s^0} = m_{B_{sH}^0} - m_{B_{sL}^0} > 1.8 \times 10^{12}\ \hbar\ \mathrm{s}^{-1}$, CL = 95%

$x_s = \Delta m_{B_s^0}/\Gamma_{B_s^0} > 2.0$, CL = 95%

B_s^0 DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)
D_s^- anything	seen	–
$D_s^-\ell^+\nu_\ell$ anything (ℓ means sum of e and μ)	seen	–
$D_s^-\pi^+$	seen	2325
$J/\psi(1S)\phi$	seen	1594
$\psi(2S)\phi$	seen	1128

HEAVY QUARK SEARCHES

Searches for Top and Fourth Generation Hadrons

See the sections "Searches for t Quark" and "Searches for b' (4^{th} Generation) Quark" at the end of the QUARKS section.

$c\overline{c}$ MESONS

$\eta_c(1S)$ or $\eta_c(2980)$

$I^G(J^{PC}) = 0^+(0^{-+})$

Mass $m = 2978.8 \pm 1.9$ MeV (S = 1.8)

Full width $\Gamma = 10.3^{+3.8}_{-3.4}$ MeV

$\eta_c(1S)$ DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)
Decays involving hadronic resonances			
$\eta'(958)\pi\pi$	(4.1 ± 1.7) %		1319
$\rho\rho$	(2.6 ± 0.9) %		1275
$K^*(892)^0K^-\pi^+$ + c.c.	(2.0 ± 0.7) %		1273
$K^*(892)\overline{K}^*(892)$	$(8.5 \pm 3.1) \times 10^{-3}$		1193
$\phi\phi$	$(7.1 \pm 2.8) \times 10^{-3}$		1086
$a_0(980)\pi$	< 2 %	90%	1323
$a_2(1320)\pi$	< 2 %	90%	1193
$K^*(892)\overline{K}$ + c.c.	< 1.28 %	90%	1307
$f_2(1270)\eta$	< 1.1 %	90%	1142
$\omega\omega$	$< 3.1 \times 10^{-3}$	90%	1268
Decays into stable hadrons			
$K\overline{K}\pi$	(6.6 ± 1.8) %		1378
$\eta\pi\pi$	(4.9 ± 1.8) %		1425
$\pi^+\pi^-K^+K^-$	$(2.0\ ^{+0.7}_{-0.6})$ %		1342
$2(\pi^+\pi^-)$	(1.2 ± 0.4) %		1457
$p\overline{p}$	$(1.2 \pm 0.4) \times 10^{-3}$		1157
$K\overline{K}\eta$	< 3.1 %	90%	1262
$\pi^+\pi^-p\overline{p}$	< 1.2 %	90%	1023
$\Lambda\overline{\Lambda}$	$< 2 \times 10^{-3}$	90%	987
Radiative decays			
$\gamma\gamma$	$(6\ ^{+6}_{-5}) \times 10^{-4}$		1489