BOTTOM BARYONS
($B = -1$)

$\Lambda_b^0 = udb$, $\Sigma_b^0 = udb$, $\Sigma_b^+ = uub$, $\Sigma_b^- = ddb$
$\Xi_b^0 = usb$, $\Xi_b^- = dsb$, $\Omega_b^- = ssb$

NODE=BXXX045

Λ_b^0

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

NODE=S040

$I(J^P)$ not yet measured; $0(\frac{1}{2}^+)$ is the quark model prediction.

Mass $m = 5619.57 \pm 0.16$ MeV
NODE=S040M;DTYPE=M

$m_{\Lambda_b^0} - m_{B^0} = 339.2 \pm 1.4$ MeV
NODE=S040DM;DTYPE=D

$m_{\Lambda_b^0} - m_{B^+} = 339.72 \pm 0.28$ MeV
NODE=S040DM2;DTYPE=D

Mean life $\tau = (1.468 \pm 0.009) \times 10^{-12}$ s
NODE=S040T;DTYPE=T;OUR EVAL;
→ UNCHECKED ←

$c\tau = 440.1$ μm
NODE=S040CTA;DTYPE=C;OUR EVAL

$A_{CP}(\Lambda_b \to\ p\pi^-) = -0.025 \pm 0.029$ (S = 1.2)
NODE=S040CP1;DTYPE=v

$A_{CP}(\Lambda_b \to\ pK^-) = -0.025 \pm 0.022$
NODE=S040CP2;DTYPE=v

$A_{CP}(\Lambda_b \to\ Dp K^-) = 0.12 \pm 0.09$
NODE=S040A38;DTYPE=v

$A_{CP}(\Lambda_b^0 \to\ \Lambda_c^+ \pi^-) = 0.007 \pm 0.009$
NODE=S040A42;DTYPE=v

$A_{CP}(\Lambda_b^0 \to\ \Lambda_c^+ K^-) = -0.032 \pm 0.030$
NODE=S040A43;DTYPE=v

$\Delta A_{CP}(pK^-/\pi^-) = 0.014 \pm 0.024$
NODE=S040A19;DTYPE=v

$A_{CP}(\Lambda_b \to\ p\overline{K}^0\pi^-) = 0.22 \pm 0.13$
NODE=S040CP3;DTYPE=v

$\Delta A_{CP}(J/\psi p\pi^-/K^-) = (5.7 \pm 2.7) \times 10^{-2}$
NODE=S040DCP;DTYPE=v

$A_{CP}(\Lambda_b \to\ \Lambda K^+\pi^-) = -0.53 \pm 0.25$
NODE=S040A00;DTYPE=v

$A_{CP}(\Lambda_b \to\ \Lambda K^+K^-) = -0.28 \pm 0.12$
NODE=S040A05;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pK^-\mu^+\mu^-) = (-4 \pm 5) \times 10^{-2}$
NODE=S040A10;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ p\pi^-\pi^+\pi^-) = (1.1 \pm 2.6) \times 10^{-2}$
NODE=S040A22;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to (p\pi^-\pi^+\pi^-)_{LBM}) = (4 \pm 4) \times 10^{-2}$
NODE=S040A23;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pa_1(1260)^-) = (-1 \pm 4) \times 10^{-2}$
NODE=S040A29;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ N(1520)^0\rho(770)^0) = (2 \pm 5) \times 10^{-2}$
NODE=S040A30;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ \Delta(1232)^{++}\pi^-\pi^-) = (0.1 \pm 3.3) \times 10^{-2}$
NODE=S040A31;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pK^-\pi^+\pi^-) = (3.2 \pm 1.3) \times 10^{-2}$
NODE=S040A24;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to (pK^-\pi^+\pi^-)_{LBM}) = (3.5 \pm 1.6) \times 10^{-2}$
NODE=S040A25;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ N(1520)^0K^*(892)^0) = (5.5 \pm 2.5) \times 10^{-2}$
NODE=S040A32;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ \Lambda(1520)\rho(770)^0) = (1 \pm 6) \times 10^{-2}$
NODE=S040A33;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ \Delta(1232)^{++}K^-\pi^-) = (4.4 \pm 2.7) \times 10^{-2}$
NODE=S040A34;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pK_1(1410)^-) = (5 \pm 4) \times 10^{-2}$
NODE=S040A35;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pK^-K^+\pi^-) = (-7 \pm 5) \times 10^{-2}$
NODE=S040A26;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ pK^-K^+K^-) = (0.2 \pm 1.9) \times 10^{-2}$
NODE=S040A27;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ \Lambda(1520)\phi(1020)) = (4 \pm 6) \times 10^{-2}$
NODE=S040A36;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to\ (pK^-)_{highmass}\ \phi(1020)) = (-0.7 \pm 3.4) \times 10^{-2}$
NODE=S040A37;DTYPE=v

$\Delta A_{CP}(\Lambda_b^0 \to (pK^-K^+K^-)_{LBM}) = (2.7 \pm 2.4) \times 10^{-2}$
NODE=S040A28;DTYPE=v

$A_{FB}^{\ell}(\mu\mu)$ in $\Lambda_b \to\ \Lambda\mu^+\mu^- = -0.39 \pm 0.04$
NODE=S040A02;DTYPE=v

$\Delta(A_{FB}^{\ell}(\mu\mu))$ in $\Lambda_b \to\ \Lambda\mu^+\mu^- = -0.05 \pm 0.09$
NODE=S040A21;DTYPE=v

$A_{FB}^{h}(p\pi)$ in $\Lambda_b \to\ \Lambda(p\pi)\mu^+\mu^- = -0.30 \pm 0.05$
NODE=S040A03;DTYPE=v

$A_{FB}^{\ell h}$ in $\Lambda_b \to\ \Lambda\mu^+\mu^- = 0.25 \pm 0.04$
NODE=S040A18;DTYPE=v

The branching fractions B(b-baryon $\to$ $\Lambda\ell^-\overline{\nu}_\ell$ anything) and B($\Lambda_b^0 \to \Lambda_c^+\ell^-\overline{\nu}_\ell$ anything) are not pure measurements because the underlying measured products of these with B($b \to$ b-baryon) were used to determine B($b \to$ b-baryon), as described in the note "Production and Decay of b-Flavored Hadrons."

NODE=S040210;NODE=S040

For inclusive branching fractions, *e.g.*, $\Lambda_b \to \overline{\Lambda}_c$ anything, the values usually are multiplicities, not branching fractions. They can be greater than one.

Λ_b^0 DECAY MODES		Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)	
$J/\psi(1S)\Lambda\times$ B($b \to$ Λ_b^0)		(5.8 $\pm$0.8) $\times 10^{-5}$		1740	DESIG=3
$p D^0 \pi^-$		(6.3 $\pm$0.6) $\times 10^{-4}$		2370	DESIG=1
$p D^+ \pi^- \pi^-$		(2.8 $\pm$0.4) $\times 10^{-4}$		2332	DESIG=79
$p D^*(2010)^+ \pi^- \pi^-$		(5.3 $\pm$1.0) $\times 10^{-4}$		2277	DESIG=80
$p D^0 K^-$		(4.6 $\pm$0.8) $\times 10^{-5}$		2269	DESIG=28
$p J/\psi \pi^-$		(2.6 $^{+0.5}_{-0.4}$) $\times 10^{-5}$		1755	DESIG=32
$p \pi^- J/\psi$, $J/\psi \to \mu^+\mu^-$		(1.6 $\pm$0.8) $\times 10^{-6}$		–	DESIG=55
$p J/\psi K^-$		(3.2 $^{+0.6}_{-0.5}$) $\times 10^{-4}$		1589	DESIG=33
$p \eta_c(1S) K^-$		(1.06$\pm$0.26) $\times 10^{-4}$		1670	DESIG=71
$P_{c\overline{c}}(4312)^+ K^-$, $P^+_{c\overline{c}} \to p\eta_c(1S)$		$<$ 2.5 $\times 10^{-5}$	CL=95%	–	DESIG=72
$P_{c\overline{c}}(4380)^+ K^-$, $P^+_{c\overline{c}} \to p J/\psi$	[a]	(2.7 $\pm$1.4) $\times 10^{-5}$		–	DESIG=42
$P_c(4450)^+ K^-$, $P_c \to p J/\psi$	[a]	(1.3 $\pm$0.4) $\times 10^{-5}$		–	DESIG=43
$\chi_{c1}(1P) p K^-$		(7.6 $^{+1.5}_{-1.3}$) $\times 10^{-5}$		1242	DESIG=52
$\chi_{c1}(1P) p \pi^-$		(5.0 $^{+1.3}_{-1.1}$) $\times 10^{-6}$		1462	DESIG=74
$\chi_{c2}(1P) p K^-$		(7.7 $^{+1.6}_{-1.4}$) $\times 10^{-5}$		1198	DESIG=53
$\chi_{c2}(1P) p \pi^-$		(4.8 $\pm$1.9) $\times 10^{-6}$		1427	DESIG=75
$p J/\psi(1S) \pi^+ \pi^- K^-$		(6.6 $^{+1.3}_{-1.1}$) $\times 10^{-5}$		1410	DESIG=46
$p \psi(2S) K^-$		(6.6 $^{+1.2}_{-1.0}$) $\times 10^{-5}$		1063	DESIG=45
$\chi_{c1}(3872) p K^-$		(2.8 $\pm$1.2) $\times 10^{-5}$		837	DESIG=67
$\chi_{c1}(3872) \Lambda(1520)$		(1.6 $\pm$0.8) $\times 10^{-5}$		721	DESIG=66
$\psi(2S) p \pi^-$		(7.5 $^{+1.6}_{-1.4}$) $\times 10^{-6}$		1320	DESIG=59
$p \overline{K}^0 \pi^-$		(1.3 $\pm$0.4) $\times 10^{-5}$		2693	DESIG=34
$p K^0 K^-$		$<$ 3.5 $\times 10^{-6}$	CL=90%	2639	DESIG=35
$\Lambda_c^+ \pi^-$		(4.9 $\pm$0.4) $\times 10^{-3}$	S=1.2	2342	DESIG=11
$\Lambda_c^+ K^-$		(3.56$\pm$0.28) $\times 10^{-4}$	S=1.2	2314	DESIG=29
$\Lambda_c^+ a_1(1260)^-$		seen		2153	DESIG=12
$\Lambda_c^+ D^-$		(4.6 $\pm$0.6) $\times 10^{-4}$		1886	DESIG=31
$\Lambda_c^+ D_s^-$		(1.10$\pm$0.10) %		1833	DESIG=30
$\Lambda_c^+ D_s^{*-}$		(1.83$\pm$0.18) %		1748	DESIG=82
$\Lambda_c^+ \overline{D}^0 K^-$		(2.13$\pm$0.20) $\times 10^{-3}$		1581	DESIG=83
$\Lambda_c^+ \overline{D}^{*0} K^-$		(6.6 $\pm$0.7) $\times 10^{-3}$		1471	DESIG=84
$\Lambda_c^+ \pi^+ \pi^- \pi^-$		(7.6 $\pm$1.1) $\times 10^{-3}$	S=1.1	2323	DESIG=4
$\Lambda_c(2595)^+ \pi^-$, $\Lambda_c(2595)^+ \to \Lambda_c^+ \pi^+ \pi^-$		(3.4 $\pm$1.4) $\times 10^{-4}$		2210	DESIG=22
$\Lambda_c(2625)^+ \pi^-$, $\Lambda_c(2625)^+ \to \Lambda_c^+ \pi^+ \pi^-$		(3.3 $\pm$1.3) $\times 10^{-4}$		2193	DESIG=23
$\Sigma_c(2455)^0 \pi^+ \pi^-$, $\Sigma_c^0 \to \Lambda_c^+ \pi^-$		(5.7 $\pm$2.2) $\times 10^{-4}$		2265	DESIG=24

$\Sigma_c(2455)^{++}\pi^-\pi^-$, $\Sigma_c^{++}\to\Lambda_c^+\pi^+$		$(\ 3.2\ \pm1.5\ )\times10^{-4}$		2265	DESIG=25
$\Sigma_c(2455)^{++}D^-K^-$		$(\ 6.0\ \pm0.8\ )\times10^{-4}$		1448	DESIG=86
$\Sigma_c(2455)^{++}D^{*-}K^-$		$(\ 1.36\pm0.22)\times10^{-3}$		1324	DESIG=85
$\Sigma_c(2520)^{++}D^-K^-$		$(\ 2.8\ \pm0.5\ )\times10^{-4}$		1392	DESIG=88
$\Sigma_c(2520)^{++}D^{*-}K^-$		$(\ 5.4\ \pm1.1\ )\times10^{-4}$		1262	DESIG=87
$\Lambda_c^+K^+K^-\pi^-$		$(\ 1.02\pm0.11)\times10^{-3}$		2184	DESIG=73
$\Lambda_c^+p\overline{p}\pi^-$		$(\ 2.63\pm0.27)\times10^{-4}$		1805	DESIG=62
$\Sigma_c(2455)^0p\overline{p}$, $\Sigma_c^0\to\Lambda_c^+\pi^-$		$(\ 2.3\ \pm0.5\ )\times10^{-5}$		–	DESIG=63
$\Sigma_c(2520)^0p\overline{p}$, $\Sigma_c(2520)^0\to\Lambda_c^+\pi^-$		$(\ 3.1\ \pm0.7\ )\times10^{-5}$		–	DESIG=64
$\Lambda_c^+\ell^-\overline{\nu}_\ell$anything	[b]	(10.9 ±2.2) %		–	DESIG=6
$\Lambda_c^+\ell^-\overline{\nu}_\ell$		$(\ 6.2\ ^{+1.4}_{-1.3}\ )$ %		2345	DESIG=15
$\Lambda_c^+\tau^-\overline{\nu}_\tau$		(1.9 ±0.5) %		1933	DESIG=78
$\Lambda_c^+\pi^+\pi^-\ell^-\overline{\nu}_\ell$		(5.6 ±3.1) %		2335	DESIG=16
$\Lambda_c(2595)^+\ell^-\overline{\nu}_\ell$		$(\ 7.9\ ^{+4.0}_{-3.5}\ )\times10^{-3}$		2212	DESIG=18
$\Lambda_c(2625)^+\ell^-\overline{\nu}_\ell$		$(\ 1.3\ ^{+0.6}_{-0.5}\ )$ %		2195	DESIG=19
ph^-	[c]	$<$ 2.3 $\times10^{-5}$	CL=90%	2730	DESIG=17
$p\pi^-$		$(\ 4.6\ \pm0.8\ )\times10^{-6}$		2730	DESIG=9
pK^-		$(\ 5.5\ \pm1.0\ )\times10^{-6}$		2709	DESIG=10
pD_s^-		$(\ 1.25\pm0.13)\times10^{-5}$		2364	DESIG=36
$p\mu^-\overline{\nu}_\mu$		$(\ 4.1\ \pm1.0\ )\times10^{-4}$		2730	DESIG=41
$\Lambda\mu^+\mu^-$		$(\ 1.08\pm0.28)\times10^{-6}$		2695	DESIG=26
$p\pi^-\mu^+\mu^-$		$(\ 6.9\ \pm2.5\ )\times10^{-8}$		2720	DESIG=54
$pK^-e^+e^-$		$(\ 3.1\ \pm0.6\ )\times10^{-7}$		2708	DESIG=68
$pK^-\mu^+\mu^-$		$(\ 2.6\ ^{+0.5}_{-0.4}\ )\times10^{-7}$		2685	DESIG=69
$\Lambda\gamma$		$(\ 7.1\ \pm1.7\ )\times10^{-6}$		2699	DESIG=13
$\Lambda\eta$		$(\ 9\ \ ^{+7}_{-5}\ )\times10^{-6}$		2670	DESIG=37
$\Lambda\eta'(958)$		$<$ 3.1 $\times10^{-6}$	CL=90%	2610	DESIG=38
$\Lambda\pi^+\pi^-$		$(\ 4.6\ \pm1.9\ )\times10^{-6}$		2692	DESIG=47
$\Lambda K^+\pi^-$		$(\ 5.7\ \pm1.2\ )\times10^{-6}$		2660	DESIG=48
ΛK^+K^-		$(\ 1.61\pm0.22)\times10^{-5}$		2605	DESIG=49
ΛD^+D^-		$(\ 1.24\pm0.35)\times10^{-4}$		1387	DESIG=89
$\Lambda\phi$		$(\ 9.8\ \pm2.6\ )\times10^{-6}$		2599	DESIG=44
$p\pi^-\pi^+\pi^-$		$(\ 2.12\pm0.21)\times10^{-5}$		2715	DESIG=50
$pK^-K^+\pi^-$		$(\ 4.1\ \pm0.6\ )\times10^{-6}$		2612	DESIG=51
$pK^-\pi^+\pi^-$		$(\ 5.1\ \pm0.5\ )\times10^{-5}$		2675	DESIG=60
$pK^-K^+K^-$		$(\ 1.27\pm0.13)\times10^{-5}$		2524	DESIG=61

$\Lambda_b(5912)^0$

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

NODE=B162

Mass m = 5912.16 ± 0.16 MeV — NODE=B162M;DTYPE=M

Full width Γ < 0.25 MeV, CL = 90% — NODE=B162W;DTYPE=G

$\Lambda_b(5912)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi^+\pi^-$	seen	86	NODE=B162215;DESIG=1

$\Lambda_b(5920)^0$

$J^P=\frac{3}{2}-$

NODE=B163

Mass m = 5920.07 ± 0.16 MeV — NODE=B163M;DTYPE=M

Full width Γ < 0.19 MeV, CL = 90% — NODE=B163W;DTYPE=G

$\Lambda_b(5920)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi^+\pi^-$	seen	108	NODE=B163215;DESIG=1

$\Lambda_b(6070)^0$

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

NODE=B197

Quantum numbers based on quark model expectations.

Mass $m = 6072.3 \pm 2.9$ MeV — NODE=B197M;DTYPE=M
Full width $\Gamma = 72 \pm 11$ MeV — NODE=B197W;DTYPE=G

$\Lambda_b(6070)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi^+\pi^-$	seen	343	NODE=B197215;DESIG=1

$\Lambda_b(6146)^0$

$J^P = \frac{3}{2}+$

NODE=B187

Mass $m = 6146.2 \pm 0.4$ MeV — NODE=B187M;DTYPE=M
$m_{\Lambda_b(6146)^0} - m_{\Lambda_b^0} = 526.55 \pm 0.34$ MeV — NODE=B187A00;DTYPE=D
Full width $\Gamma = 2.9 \pm 1.3$ MeV — NODE=B187W;DTYPE=G

$\Lambda_b(6146)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi^+\pi^-$	seen	427	NODE=B187215;DESIG=1

$\Lambda_b(6152)^0$

$J^P = \frac{5}{2}+$

NODE=B188

Mass $m = 6152.5 \pm 0.4$ MeV — NODE=B188M;DTYPE=M
$m_{\Lambda_b(6152)^0} - m_{\Lambda_b^0} = 532.89 \pm 0.28$ MeV — NODE=B188DM;DTYPE=D
$m_{\Lambda_b(6152)^0} - m_{\Lambda_b(6146)^0} = 6.34 \pm 0.32$ MeV — NODE=B188A00;DTYPE=D
Full width $\Gamma = 2.1 \pm 0.9$ MeV — NODE=B188W;DTYPE=G

$\Lambda_b(6152)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi^+\pi^-$	seen	434	NODE=B188215;DESIG=1

Σ_b

$I(J^P) = 1(\frac{1}{2}+)$
I, J, P need confirmation.

NODE=S026

Mass $m(\Sigma_b^+) = 5810.56 \pm 0.25$ MeV — NODE=S026M+;DTYPE=M
Mass $m(\Sigma_b^-) = 5815.64 \pm 0.27$ MeV — NODE=S026M-;DTYPE=M
$m_{\Sigma_b^+} - m_{\Sigma_b^-} = -5.06 \pm 0.18$ MeV — NODE=S026DMI;DTYPE=D
$\Gamma(\Sigma_b^+) = 5.0 \pm 0.5$ MeV — NODE=S026W+;DTYPE=G
$\Gamma(\Sigma_b^-) = 5.3 \pm 0.5$ MeV — NODE=S026W-;DTYPE=G

Σ_b DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi$	dominant	133	NODE=S026215;DESIG=1

Σ_b^*

$I(J^P) = 1(\frac{3}{2}^+)$
I, J, P need confirmation. NODE=S062

Mass $m(\Sigma_b^{*+}) = 5830.32 \pm 0.27$ MeV NODE=S062M+;DTYPE=M
Mass $m(\Sigma_b^{*-}) = 5834.74 \pm 0.30$ MeV NODE=S062M-;DTYPE=M
$m_{\Sigma_b^{*+}} - m_{\Sigma_b^{*-}} = -4.37 \pm 0.33$ MeV (S = 1.6) NODE=S062DMI;DTYPE=D
$m_{\Sigma_b^{*+}} - m_{\Sigma_b^+} = 19.73 \pm 0.18$ NODE=S062DMP;DTYPE=D
$m_{\Sigma_b^{*-}} - m_{\Sigma_b^-} = 19.09 \pm 0.22$ NODE=S062DMM;DTYPE=D
$\Gamma(\Sigma_b^{*+}) = 9.4 \pm 0.5$ MeV NODE=S062W+;DTYPE=G
$\Gamma(\Sigma_b^{*-}) = 10.4 \pm 0.8$ MeV (S = 1.3) NODE=S062W-;DTYPE=G
$m_{\Sigma_b^*} - m_{\Sigma_b} = 21.2 \pm 2.0$ MeV NODE=S062DM;DTYPE=D

Σ_b^* DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0\pi$	dominant	159	NODE=S062215;DESIG=1

$\Sigma_b(6097)^+$

$J^P = ?^?$ NODE=B181

Mass $m = 6095.8 \pm 1.7$ MeV NODE=B181M;DTYPE=M
Full width $\Gamma = 31 \pm 6$ MeV NODE=B181W;DTYPE=G

$\Sigma_b(6097)^+$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b\pi^+ \times$ B($b \to \ \Sigma_b(6097)^+$)	seen	–	NODE=B181215;DESIG=1

$\Sigma_b(6097)^-$

$J^P = ?^?$ NODE=B182

Mass $m = 6098.0 \pm 1.8$ MeV NODE=B182M;DTYPE=M
Full width $\Gamma = 29 \pm 4$ MeV NODE=B182W;DTYPE=G

$\Sigma_b(6097)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b\pi^- \times$ B($b \to \ \Sigma_b(6097)^-$)	seen	–	NODE=B182215;DESIG=1

Ξ_b^-

$I(J^P) = \frac{1}{2}(\frac{1}{2}^+)$
I, J, P need confirmation. NODE=S069

$m(\Xi_b^-) = 5797.0 \pm 0.4$ MeV (S = 1.4) NODE=S069M-;DTYPE=M
$m_{\Xi_b^-} - m_{\Lambda_b^0} = 177.48 \pm 0.24$ MeV (S = 1.1) NODE=S069DML;DTYPE=D
$m_{\Xi_b^-} - m_{\Xi_b^0} = 5.9 \pm 0.5$ MeV NODE=S069DM;DTYPE=D
Mean life $\tau_{\Xi_b^-} = (1.578 \pm 0.021) \times 10^{-12}$ s NODE=S069T-;DTYPE=T;OUR EVAL;
→ UNCHECKED ←

Ξ_b^- DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)	
$J/\psi\Xi^-\times$ B($b\to\ \Xi_b^-$)	$(1.02^{+0.26}_{-0.21})\times10^{-5}$		1782	NODE=S069210;DESIG=2
$J/\psi\Lambda K^-\times$ B($b\to\ \Xi_b^-$)	$(2.5\ \pm0.4\ )\times10^{-6}$		1631	DESIG=17
$pK^-K^-\times$ B($b\to\ \Xi_b^-$)	$(3.7\ \pm0.8\ )\times10^{-8}$		2731	DESIG=15
pK^-K^-	$(2.3\ \pm0.9\ )\times10^{-6}$		2731	DESIG=14
$p\pi^-\pi^-$	$<1.3\times10^{-6}$	90%	2813	DESIG=16
$pK^-\pi^-$	$(2.3\ \pm1.1\ )\times10^{-6}$		2783	DESIG=13
$\Lambda_b^0\pi^-\times$ B($b\to\ \Xi_b^-$)/B($b\to\ \Lambda_b^0$)	$(7.0\ \pm0.9\ )\times10^{-4}$		99	DESIG=7
$\Xi_c^0\pi^-$	seen		2367	DESIG=25
$\Xi_c^0D_s^-\times$ B($b\to\ \Xi_b^-$)/B($b\to\ \Lambda_b^0$)	$(1.9\ \pm0.5\ )\times10^{-3}$		–	DESIG=35
$\Sigma(1385)K^-$	$(2.6\ \pm2.3\ )\times10^{-7}$		2707	DESIG=26
$\Lambda(1405)K^-$	$(1.9\ \pm1.2\ )\times10^{-7}$		2702	DESIG=27
$\Lambda(1520)K^-$	$(7.6\ \pm3.2\ )\times10^{-7}$		2673	DESIG=28
$\Lambda(1670)K^-$	$(4.5\ \pm2.3\ )\times10^{-7}$		2629	DESIG=29
$\Sigma(1775)K^-$	$(2.2\ \pm1.5\ )\times10^{-7}$		2599	DESIG=30
$\Sigma(1915)K^-$	$(2.6\ \pm2.5\ )\times10^{-7}$		2553	DESIG=31
$J/\psi\Xi^-$	seen		–	DESIG=34;OUR EST;→ UNCHECKED ←
$\psi(2S)\Xi^-$	seen		–	DESIG=33;OUR EST;→ UNCHECKED ←
$\Xi^-\gamma$	$<1.3\times10^{-4}$	95%	–	DESIG=32

Ξ_b^0

$I(J^P)=\frac{1}{2}(\frac{1}{2}^+)$
I, J, P need confirmation. NODE=S070

$m(\Xi_b^0)=5791.7\pm0.4$ MeV NODE=S070M0;DTYPE=M
$m_{\Xi_b^0}-m_{\Lambda_b^0}=172.3\pm0.4$ MeV NODE=S070DMN;DTYPE=D
Mean life $\tau_{\Xi_b^0}=(1.477\pm0.032)\times10^{-12}$ s NODE=S070T0;DTYPE=T;OUR EVAL; → UNCHECKED ←

Ξ_b^0 DECAY MODES	Fraction (Γ_i/Γ)	Confidence level	p (MeV/c)	
$pD^0K^-\times$ B($b\to\ \Xi_b^0$)	$(1.7\ \pm0.6\ )\times10^{-6}$		2374	NODE=S070210;DESIG=3
$p\overline{K}^0\pi^-\times$ B($b\to\ \Xi_b^0$)/B($\overline{b}\to\ B^0$)	$<1.6\times10^{-6}$	90%	2783	DESIG=5
$pK^0K^-\times$ B($b\to\ \Xi_b^0$)/B($\overline{b}\to\ B^0$)	$<1.1\times10^{-6}$	90%	2730	DESIG=6
$\Lambda\pi^+\pi^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<1.7\times10^{-6}$	90%	2781	DESIG=8
$\Lambda K^-\pi^+\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<8\times10^{-7}$	90%	2751	DESIG=9
$\Lambda K^+K^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$<3\times10^{-7}$	90%	2698	DESIG=10
$J/\psi\Lambda$	seen		1868	DESIG=23;OUR EVAL;→ UNCHECKED ←
$J/\psi\Xi^0$	seen		1785	DESIG=24;OUR EVAL;→ UNCHECKED ←
$\Xi_c^+D_s^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.7\ \pm0.9\ )\times10^{-3}$		–	DESIG=25
$\Lambda_c^+K^-\times$ B($b\to\ \Xi_b^0$)	$(6\ \ \pm4\ \ )\times10^{-7}$		2416	DESIG=4
$pK^-\pi^+\pi^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.9\ \pm0.4\ )\times10^{-6}$		2766	DESIG=18
$pK^-K^-\pi^+\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.73\pm0.31)\times10^{-6}$		2704	DESIG=19
$pK^-K^+K^-\times$ B($b\to\ \Xi_b^0$)/B($b\to\ \Lambda_b^0$)	$(1.8\ \pm1.0\ )\times10^{-7}$		2620	DESIG=20

$\Xi_b'(5935)^-$

$J^P=\frac{1}{2}^+$ NODE=B169

Mass $m=5934.9\pm0.4$ MeV NODE=B169M;DTYPE=M
Full width $\Gamma=0.03\pm0.032$ MeV NODE=B169W;DTYPE=G

$\Xi_b'(5935)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0\pi^-\times$ B($\overline{b}\to$ $\Xi_b'(5935)^-$)/B($\overline{b}\to$ Ξ_b^0)	(11.8±1.8) %	31	NODE=B169215;DESIG=1

$\Xi_b(5945)^0$

$J^P = \frac{3}{2}+$

NODE=B161

Mass $m = 5952.3 \pm 0.6$ MeV — NODE=B161M;DTYPE=M

Full width $\Gamma = 0.87 \pm 0.07$ MeV — NODE=B161W;DTYPE=G

$\Xi_b(5945)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^-\pi^+$	seen	78	NODE=B161215;DESIG=1

$\Xi_b(5955)^-$

$J^P = \frac{3}{2}+$

NODE=B170

Mass $m = 5955.5 \pm 0.4$ MeV — NODE=B170M;DTYPE=M

Full width $\Gamma = 1.43 \pm 0.11$ MeV — NODE=B170W;DTYPE=G

$\Xi_b(5955)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0\pi^-\times$ B($\overline{b}\to$ $\Xi_b^*(5955)^-$)/B($\overline{b}\to$ Ξ_b^0)	(20.7±3.5) %	84	NODE=B170215;DESIG=1

$\Xi_b(6087)^0$

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

J, P need confirmation.

NODE=B207

Mass $m = 6087.0 \pm 0.5$ MeV — NODE=B207M;DTYPE=M

Full width $\Gamma = 2.4 \pm 0.5$ MeV — NODE=B207W;DTYPE=G

$\Xi_b(6087)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0\pi^+\pi^-$	seen	–	NODE=B207215;DESIG=1

$\Xi_b(6095)^0$

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

J, P need confirmation.

NODE=B208

Mass $m = 6095.1 \pm 0.4$ MeV — NODE=B208M;DTYPE=M

Full width $\Gamma = 0.50 \pm 0.35$ MeV — NODE=B208W;DTYPE=G

$\Xi_b(6095)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0\pi^+\pi^-$	seen	–	NODE=B208215;DESIG=1

$\Xi_b(6100)^-$

$J^P = \frac{3}{2}-$

J, P need confirmation.

NODE=B200

Mass $m = 6099.8 \pm 0.4$ MeV — NODE=B200M;DTYPE=M

Full width $\Gamma = 0.94 \pm 0.31$ MeV — NODE=B200W;DTYPE=G

$\Xi_b(6100)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^-\pi^+\pi^-$	seen	128	NODE=B200215;DESIG=1

$\Xi_b(6227)^-$

$J^P = ?^?$

NODE=B180

Mass $m = 6227.9 \pm 0.9$ MeV — NODE=B180M;DTYPE=M

Full width $\Gamma = 19.9 \pm 2.6$ MeV — NODE=B180W;DTYPE=G

$\Xi_b(6227)^-$ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor	p (MeV/c)	
$\Lambda_b^0 K^-\times$ B($b\to$ $\Xi_b(6227)$)/B($b\to$ Λ_b^0)	$(3.20\pm0.35)\times10^{-3}$		336	NODE=B180215;DESIG=1
$\Xi_b^0\pi^-\times$ B($b\to$ $\Xi_b(6227)$)/B($b\to$ Ξ_b^0)	(2.8 ±1.1) %	1.8	398	DESIG=2

$\Xi_b(6227)^0$

$J^P = ?^?$

NODE=B199

Mass $m = 6226.8 \pm 1.6$ MeV — NODE=B199M;DTYPE=M

Full width $\Gamma = 19^{+5}_{-4}$ MeV — NODE=B199W;DTYPE=G

$\Xi_b(6227)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^-\pi^+\times$ B($b\to$ $\Xi_b(6227)^0$)/B($b\to$ Ξ_b^-)	(4.5±0.9) %	398	NODE=B199215;DESIG=1

$\Xi_b(6327)^0$

$J^P = ?^?$

NODE=B201

Mass $m = 6327.28 \pm 0.35$ MeV — NODE=B201M;DTYPE=M

Full width $\Gamma < 2.56$ MeV, CL = 95% — NODE=B201W;DTYPE=G

$\Xi_b(6327)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0 K^-\pi^+$	seen	298	NODE=B201215;DESIG=1

$\Xi_b(6333)^0$

$J^P = ?^?$

NODE=B202

Mass $m = 6332.69 \pm 0.28$ MeV — NODE=B202M;DTYPE=M

Full width $\Gamma < 1.92$ MeV, CL = 95% — NODE=B202W;DTYPE=G

$\Xi_b(6333)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Lambda_b^0 K^-\pi^+$	seen	309	NODE=B202215;DESIG=1

Ω_b^-

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

NODE=S063

Mass $m = 6045.8 \pm 0.8$ MeV — NODE=S063M;DTYPE=M

$m_{\Omega_b^-} - m_{\Lambda_b^0} = 426.4 \pm 2.2$ MeV — NODE=S063DML;DTYPE=D

$m_{\Omega_b^-} - m_{\Xi_b^-} = 248.5 \pm 0.6$ MeV — NODE=S063A00;DTYPE=D

Mean life $\tau = (1.64 \pm 0.16)\times10^{-12}$ s — NODE=S063T;DTYPE=T;OUR EVAL; → UNCHECKED ←

$\tau(\Omega_b^-)/\tau(\Xi_b^-)$ mean life ratio $= 1.11 \pm 0.16$ — NODE=S063A01;DTYPE=t

Ω_b^- DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)	
$J/\psi\,\Omega^-\times$B($b\to$ Ω_b)	$(1.4^{+0.5}_{-0.4})\times10^{-6}$	S=1.6	1805	NODE=S063210;DESIG=1
$pK^-K^-\times$B($\bar{b}\to$ Ω_b)	$< 2.3 \times10^{-9}$	CL=90%	2865	DESIG=2
$p\pi^-\pi^-\times$B($\bar{b}\to$ Ω_b)	$< 1.5 \times10^{-8}$	CL=90%	2943	DESIG=4
$pK^-\pi^-\times$B($\bar{b}\to$ Ω_b)	$< 7 \times10^{-9}$	CL=90%	2915	DESIG=3
$\Omega_c^0\pi^-$	seen		2420	DESIG=5
$\Omega_c^0\pi^-$, $\Omega_c^0\to pK^-K^-\pi^+$	seen		–	DESIG=7;OUR EVAL;→ UNCHECKED ←
$\Xi_c^+K^-\pi^-$	seen		2473	DESIG=6;OUR EVAL;→ UNCHECKED ←

$\Omega_b(6316)^-$

$I(J^P) = ?(?^?)$
I, J, P need confirmation.

NODE=B193

Mass $m = 6315.6 \pm 0.6$ MeV — NODE=B193M;DTYPE=M

Full width $\Gamma < 4.2$ MeV, CL = 95% — NODE=B193W;DTYPE=G

$\Omega_b(6316)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0 K^-$	seen	168	NODE=B193215;DESIG=1

$\Omega_b(6330)^-$

$I(J^P) = ?(?^?)$
I, J, P need confirmation. NODE=B194

Mass $m = 6330.3 \pm 0.6$ MeV NODE=B194M;DTYPE=M
Full width $\Gamma < 4.7$ MeV, CL = 95% NODE=B194W;DTYPE=G

$\Omega_b(6330)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0 K^-$	seen	206	NODE=B194215;DESIG=1

$\Omega_b(6340)^-$

$I(J^P) = ?(?^?)$
I, J, P need confirmation. NODE=B195

Mass $m = 6339.7 \pm 0.6$ MeV NODE=B195M;DTYPE=M
Full width $\Gamma < 1.8$ MeV, CL = 95% NODE=B195W;DTYPE=G

$\Omega_b(6340)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0 K^-$	seen	227	NODE=B195215;DESIG=1

$\Omega_b(6350)^-$

$I(J^P) = ?(?^?)$
I, J, P need confirmation. NODE=B196

Mass $m = 6349.8 \pm 0.6$ MeV NODE=B196M;DTYPE=M
Full width $\Gamma < 3.2$ MeV, CL = 95% NODE=B196W;DTYPE=G

$\Omega_b(6350)^-$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$\Xi_b^0 K^-$	seen	248	NODE=B196215;DESIG=1

b-baryon ADMIXTURE (Λ_b, Ξ_b, Ω_b)

NODE=S061

These branching fractions are actually an average over weakly decaying b-baryons weighted by their production rates at the LHC, LEP, and Tevatron, branching ratios, and detection efficiencies. They scale with the b-baryon production fraction B($b \to$ b-baryon). NODE=S061210;NODE=S061

The branching fractions B(b-baryon $\to \Lambda \ell^- \overline{\nu}_\ell$ anything) and B($\Lambda_b^0 \to \Lambda_c^+ \ell^- \overline{\nu}_\ell$ anything) are not pure measurements because the underlying measured products of these with B($b \to$ b-baryon) were used to determine B($b \to$ b-baryon), as described in the note "Production and Decay of b-Flavored Hadrons."

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-baryon ADMIXTURE DECAY MODES (Λ_b,Ξ_b,Ω_b)	Fraction (Γ_i/Γ)	Scale factor	p (MeV/c)	
$p \mu^- \overline{\nu}$ anything	($5.8^{+\ 2.3}_{-\ 2.0}$) %		–	DESIG=8
$p \ell \overline{\nu}_\ell$ anything	(5.6± 1.2) %		–	DESIG=9
p anything	(70 ±22) %		–	DESIG=10
$\Lambda \ell^- \overline{\nu}_\ell$ anything	(3.8± 0.6) %		–	DESIG=5
$\Lambda \ell^+ \nu_\ell$ anything	(3.2± 0.8) %		–	DESIG=2
Λ anything	(39 ± 7) %		–	DESIG=7
$\Xi^- \ell^- \overline{\nu}_\ell$ anything	(4.6± 1.4) $\times 10^{-3}$	1.2	–	DESIG=1

NOTES

[*a*] P_c^+ is a pentaquark-charmonium state. LINKAGE=PTQ

[*b*] Not a pure measurement. See note at head of Λ_b^0 Decay Modes. LINKAGE=X40

[*c*] Here h^- means π^- or K^-. LINKAGE=HEX