Ω_b^-

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

In the quark model Ω_b^- is ssb ground state. None of its quantum numbers has been measured.

Ω_b^- MASS

VALUE (MeV)	*DOCUMENT ID*	*TECN*	*COMMENT*
6071 ±40 OUR AVERAGE	Error includes scale factor of 6.2.		
6054.4± 6.8± 0.9	[1] AALTONEN	09AP CDF	$p\overline{p}$ at 1.96 TeV
6165 ±10 ±13	[2] ABAZOV	08AL D0	$p\overline{p}$ at 1.96 TeV

[1] Observed in $\Omega_b^- \to J/\psi\Omega^-$ decays with 16^{+6}_{-4} candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.
[2] Observed in $\Omega_b^- \to J/\psi\Omega^-$ decays with $17.8 \pm 4.9 \pm 0.8$ candidates, a significance of 5.4 sigma.

Ω_b MEAN LIFE

VALUE (10^{-12} s)	*DOCUMENT ID*	*TECN*	*COMMENT*
$\mathbf{1.13^{+0.53}_{-0.40}\pm0.02}$	[3] AALTONEN	09AP CDF	$p\overline{p}$ at 1.96 TeV

[3] Observed in $\Omega_b^- \to J/\psi\Omega^-$ decays with 16^{+6}_{-4} candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.

Ω_b^- DECAY MODES

	Mode	Fraction (Γ_i/Γ)
Γ_1	$J/\psi\Omega^-\times$B($b \to \Omega_b$)	$(2.4\pm1.2)\times10^{-6}$

Ω_b^- BRANCHING RATIOS

$\Gamma(J/\psi\Omega^-\times$B$(b\to\Omega_b))/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE (units 10^{-4})	*DOCUMENT ID*	*TECN*	*COMMENT*
0.024±0.012 OUR AVERAGE			
$0.021^{+0.008}_{-0.006}\pm0.010$	[4] AALTONEN	09AP CDF	$p\overline{p}$ at 1.96 TeV
$0.065^{+0.029}_{-0.032}{}^{+0.035}_{-0.033}$	[5] ABAZOV	08AL D0	$p\overline{p}$ at 1.96 TeV

[4] AALTONEN 09AP reports $[\Gamma(\Omega_b^- \to J/\psi\Omega^-\times$B$(b\to\Omega_b))/\Gamma_{\text{total}}]$ / $[$B$(\Lambda_b^0 \to J/\psi(1S)\Lambda\times$ B$(b\to\Lambda_b^0))] = 0.045^{+0.017}_{-0.012} \pm 0.004$ which we multiply by our best value B$(\Lambda_b^0 \to J/\psi(1S)\Lambda\times$ B$(b\to\Lambda_b^0)) = (4.7 \pm 2.3)\times10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.
[5] ABAZOV 08AL reports $[\Gamma(\Omega_b^- \to J/\psi\Omega^-\times$B$(b\to\Omega_b))/\Gamma_{\text{total}}]$ / $[$B$(\Xi_b^- \to J/\psi\Xi^-\times$ B$(b\to\Xi_b^-))] = 0.80 \pm 0.32^{+0.14}_{-0.22}$ which we multiply by our best value B$(\Xi_b^- \to J/\psi\Xi^-\times$ B$(b\to\Xi_b^-)) = (8\pm4)\times10^{-6}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

Ω_b^- REFERENCES

AALTONEN	09AP PR D80 072003	T. Aaltonen *et al.*	(CDF Collab.)
ABAZOV	08AL PRL 101 232002	V.M. Abazov *et al.*	(D0 Collab.)