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($b \to \ \Omega_b$)	$(2.9^{+1.1}_{-0.8}) \times 10^{-6}$

Ω_b^- BRANCHING RATIOS

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

VALUE (units 10^{-4})	*DOCUMENT ID*		*TECN*	*COMMENT*
$\mathbf{0.029^{+0.011}_{-0.008}}$ **OUR AVERAGE**				
$0.026^{+0.010}_{-0.007}\pm0.004$	[4] AALTONEN	09AP	CDF	$p\overline{p}$ at 1.96 TeV
0.08 ±0.04 ±0.02	[5] ABAZOV	08AL	D0	$p\overline{p}$ at 1.96 TeV

[4] AALTONEN 09AP reports $[\Gamma(\Omega_b^- \to \ J/\psi\Omega^- \times$B$(b \to \ \Omega_b)\ )/\Gamma_{\rm total}]$ / $[$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$(b \to \ \Lambda_b^0)\ ) = (5.8 \pm 0.8) \times 10^{-5}$. 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$(b \to \ \Omega_b)\ )/\Gamma_{\rm total}]$ / $[$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

$B(\Xi_b^- \to J/\psi\Xi^- \times B(b \to \Xi_b^-)) = (1.02^{+0.26}_{-0.21}) \times 10^{-5}$. 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.)