



$I(J^P) = 0(\frac{1}{2}^+)$ 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
6048.8 ± 3.2 OUR AVERAGE	Error includes scale factor of 1.5.		
6046.0 ± 2.2 ± 0.5	¹ AAIJ	13AV LHCB	$p\bar{p}$ at 7 TeV
6054.4 ± 6.8 ± 0.9	² AALTONEN	09AP CDF	$p\bar{p}$ at 1.96 TeV
6165 ± 10 ± 13	³ ABAZOV	08AL D0	$p\bar{p}$ at 1.96 TeV

¹ Measured in $\Omega_b^- \rightarrow J/\psi \Omega^-$ with 19 ± 5 events.

² Observed in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays with 16_{-4}^{+6} candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.

³ Observed in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays with $17.8 \pm 4.9 \pm 0.8$ candidates, a significance of 5.4 sigma.

$m_{\Omega_b^-} - m_{\Lambda_b^0}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
426.4 ± 2.2 ± 0.4	AAIJ	13AV LHCB	$p\bar{p}$ at 7 TeV

Ω_b^- MEAN LIFE

VALUE (10^{-12} s)	DOCUMENT ID	TECN	COMMENT
1.13^{+0.53}_{-0.40} ± 0.02	⁴ AALTONEN	09AP CDF	$p\bar{p}$ at 1.96 TeV

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

Ω_b^- DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad J/\psi \Omega^- \times B(b \rightarrow \Omega_b)$	$(2.9_{-0.8}^{+1.1}) \times 10^{-6}$

Ω_b^- BRANCHING RATIOS

$\Gamma(J/\psi \Omega^- \times B(b \rightarrow \Omega_b))/\Gamma_{\text{total}}$	Γ_1/Γ		
VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
0.029^{+0.011}_{-0.008} OUR AVERAGE			
0.026 ^{+0.010} _{-0.007} ± 0.004	⁵ AALTONEN	09AP CDF	$p\bar{p}$ at 1.96 TeV
0.08 ± 0.04 ± 0.02	⁶ ABAZOV	08AL D0	$p\bar{p}$ at 1.96 TeV

⁵ AALTONEN 09AP reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)) / \Gamma_{\text{total}}] / [B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0))] = 0.045_{-0.012}^{+0.017} \pm 0.004$ which we multiply by our best value $B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0)) = (5.8 \pm 0.8) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

⁶ ABAZOV 08AL reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega^- \times B(b \rightarrow \Omega_b^-)) / \Gamma_{\text{total}}] / [B(\Xi_b^- \rightarrow J/\psi \Xi^- \times B(b \rightarrow \Xi_b^-))] = 0.80 \pm 0.32_{-0.22}^{+0.14}$ which we multiply by our best value $B(\Xi_b^- \rightarrow J/\psi \Xi^- \times B(b \rightarrow \Xi_b^-)) = (1.02_{-0.21}^{+0.26}) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

Ω_b^- REFERENCES

AAIJ	13AV PRL 110 182001	R. Aaij <i>et al.</i>	(LHCb Collab.)
AALTONEN	09AP PR D80 072003	T. Aaltonen <i>et al.</i>	(CDF Collab.)
ABAZOV	08AL PRL 101 232002	V.M. Abazov <i>et al.</i>	(D0 Collab.)
