



$I(J^P) = 0(\frac{1}{2}^+)$ 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
6048.0 ± 1.9 OUR AVERAGE			
6047.5 ± 3.8 ± 0.6	¹ AALTONEN	14B CDF	$p\bar{p}$ at 1.96 TeV
6046.0 ± 2.2 ± 0.5	² AAIJ	13AV LHCb	pp at 7 TeV
6165 ± 10 ± 13	³ ABAZOV	08AL D0	$p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
6054.4 ± 6.8 ± 0.9	⁴ AALTONEN	09AP CDF	Repl. by AALTONEN 14B
¹ Uses $\Omega_b^- \rightarrow J/\psi \Omega^-$ and $\Omega_c^0 \pi^-$ decays, with the first evidence for $\Omega_b^- \rightarrow \Omega_c^0 \pi^-$ at 3.3 σ significance.			
² Measured in $\Omega_b^- \rightarrow J/\psi \Omega^-$ with 19 ± 5 events.			
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.			
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.			

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
426.4 ± 2.2 ± 0.4	AAIJ	13AV LHCb	pp at 7 TeV

Ω_b^- MEAN LIFE

VALUE (10^{-12} s)	DOCUMENT ID	TECN	COMMENT
1.57^{+0.23}_{-0.20} OUR EVALUATION			
1.57^{+0.24}_{-0.19} OUR AVERAGE			
1.54 ^{+0.26} _{-0.21} ± 0.05	¹ AAIJ	14T LHCb	pp at 7, 8 TeV
1.66 ^{+0.53} _{-0.40} ± 0.02	¹ AALTONEN	14B CDF	$p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.13 ^{+0.53} _{-0.40} ± 0.02	² AALTONEN	09AP CDF	Repl. by AALTONEN 14B
¹ Measured in $\Omega_b^- \rightarrow J/\psi \Omega^-$ decays.			
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.			

Ω_b^- DECAY MODES

Mode	Fraction (Γ_j/Γ)
Γ_1 $J/\psi \Omega_b^- \times B(b \rightarrow \Omega_b)$	$(2.9^{+1.1}_{-0.8}) \times 10^{-6}$

Ω_b^- BRANCHING RATIOS

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

VALUE (units 10^{-4})	DOCUMENT ID	TECN	COMMENT
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$0.029^{+0.011}_{-0.008}$ OUR AVERAGE

$0.026^{+0.010}_{-0.007} \pm 0.004$	¹ AALTONEN	09AP CDF	$p\bar{p}$ at 1.96 TeV
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$0.08 \pm 0.04 \pm 0.02$	² ABAZOV	08AL D0	$p\bar{p}$ at 1.96 TeV
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¹ AALTONEN 09AP reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega_b^- \times B(b \rightarrow \Omega_b)) / \Gamma_{\text{total}}] / [B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0))] = 0.045^{+0.017}_{-0.012} \pm 0.004$ 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.

² ABAZOV 08AL reports $[\Gamma(\Omega_b^- \rightarrow J/\psi \Omega_b^- \times B(b \rightarrow \Omega_b)) / \Gamma_{\text{total}}] / [B(\Xi_b^- \rightarrow J/\psi \Xi_b^- \times B(b \rightarrow \Xi_b^-))] = 0.80 \pm 0.32^{+0.14}_{-0.22}$ which we multiply by our best value $B(\Xi_b^- \rightarrow J/\psi \Xi_b^- \times B(b \rightarrow \Xi_b^-)) = (1.02^{+0.26}_{-0.21}) \times 10^{-5}$. Our first error is their experiment's error and our second error is the systematic error from using our best value.

Ω_b^- REFERENCES

AAIJ	14T PL B736 154	R. Aaij <i>et al.</i>	(LHCb Collab.)
AALTONEN	14B PR D89 072014	T. Aaltonen <i>et al.</i>	(CDF Collab.)
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.)