



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

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

### $\Omega_b^-$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>6071 ± 40 OUR AVERAGE</b>	Error includes scale factor of 6.2.		
6054.4 ± 6.8 ± 0.9	<sup>1</sup> AALTONEN	09AP CDF	$\rho\bar{p}$ at 1.96 TeV
6165 ± 10 ± 13	<sup>2</sup> ABAZOV	08AL D0	$\rho\bar{p}$ at 1.96 TeV
<sup>1</sup> Observed in $\Omega_b^- \rightarrow J/\psi\Omega^-$ decays with $16^{+6}_{-4}$ candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.			
<sup>2</sup> 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.			

### $\Omega_b$ MEAN LIFE

VALUE ( $10^{-12}$ s)	DOCUMENT ID	TECN	COMMENT
<b>1.13<sup>+0.53</sup><sub>-0.40</sub> ± 0.02</b>	<sup>3</sup> AALTONEN	09AP CDF	$\rho\bar{p}$ at 1.96 TeV
<sup>3</sup> Observed in $\Omega_b^- \rightarrow J/\psi\Omega^-$ decays with $16^{+6}_{-4}$ candidates, a significance of 5.5 sigma from a combined mass-lifetime fit.			

### $\Omega_b^-$ DECAY MODES

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

### $\Omega_b^-$ BRANCHING RATIOS

$\Gamma(J/\psi\Omega^- \times B(b \rightarrow \Omega_b))/\Gamma_{\text{total}}$	$\Gamma_1/\Gamma$		
VALUE (units $10^{-4}$ )	DOCUMENT ID	TECN	COMMENT
<b>0.029<sup>+0.011</sup><sub>-0.008</sub> OUR AVERAGE</b>			
0.026 <sup>+0.010</sup> <sub>-0.007</sub> ± 0.004	<sup>4</sup> AALTONEN	09AP CDF	$\rho\bar{p}$ at 1.96 TeV
0.08 ± 0.04 ± 0.02	<sup>5</sup> ABAZOV	08AL D0	$\rho\bar{p}$ at 1.96 TeV
<sup>4</sup> AALTONEN 09AP reports $[\Gamma(\Omega_b^- \rightarrow J/\psi\Omega^- \times B(b \rightarrow \Omega_b))/\Gamma_{\text{total}}] / [B(\Lambda_b^0 \rightarrow J/\psi(1S)\Lambda \times B(b \rightarrow \Lambda_b^0))] = 0.045^{+0.017}_{-0.012} \pm 0.004$ 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.			
<sup>5</sup> ABAZOV 08AL reports $[\Gamma(\Omega_b^- \rightarrow J/\psi\Omega^- \times B(b \rightarrow \Omega_b))/\Gamma_{\text{total}}] / [B(\Xi_b^- \rightarrow J/\psi\Xi^- \times B(b \rightarrow \Xi_b^-))] = 0.80 \pm 0.32^{+0.14}_{-0.22}$ 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.

---

### $\Omega_b^-$ REFERENCES

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.)

---