



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

In the quark model $\Sigma_b^+, \Sigma_b^0, \Sigma_b^-$ are an isotriplet (uub, udb, ddb) state. The lowest Σ_b ought to have $J^P = 1/2^+$. None of $I, J,$ or P have actually been measured.

Σ_b MASS

Σ_b^+ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$5811.3^{+0.9}_{-0.8} \pm 1.7$	¹ AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$5807.8^{+2.0}_{-2.2} \pm 1.7$	² AALTONEN	07K	CDF Repl. by AALTONEN 12F

Σ_b^- MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$5815.5^{+0.6}_{-0.5} \pm 1.7$	¹ AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
$5815.2 \pm 1.0 \pm 1.7$	² AALTONEN	07K	CDF Repl. by AALTONEN 12F

$m_{\Sigma_b^+} - m_{\Sigma_b^-}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$-4.2^{+1.1}_{-1.0} \pm 0.1$	¹ AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

¹ Measured using the fully reconstructed $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$ and $\Lambda_c^+ \rightarrow K^- \pi^+$ decays.

² Observed four $\Lambda_b^0 \pi^\pm$ resonances in the fully reconstructed decay mode $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$, where $\Lambda_c^+ \rightarrow p K^- \pi^+$.

Σ_b WIDTH

Σ_b^+ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$9.7^{+3.8+1.2}_{-2.8-1.1}$	³ AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

Σ_b^- WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
$4.9^{+3.1}_{-2.1} \pm 1.1$	³ AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

³ Measured using the fully reconstructed $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$ and $\Lambda_c^+ \rightarrow K^- \pi^+$ decays.

Σ_b DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Lambda_b^0 \pi$	dominant

Σ_b BRANCHING RATIOS

$\Gamma(\Lambda_b^0 \pi)/\Gamma_{\text{total}}$				Γ_1/Γ
<i>VALUE</i>	<i>DOCUMENT ID</i>	<i>TECN</i>	<i>COMMENT</i>	
dominant	AALTONEN	07K	CDF	$p\bar{p}$ at 1.96 TeV

Σ_b REFERENCES

AALTONEN	12F	PR D85 092011	T. Aaltonen <i>et al.</i>	(CDF Collab.)
AALTONEN	07K	PRL 99 202001	T. Aaltonen <i>et al.</i>	(CDF Collab.)