



$$I(J^P) = 1(\frac{3}{2}^+) \text{ Status: } ***$$

$I, J, P$  need confirmation.

$I, J, P$  need confirmation. Quantum numbers shown are quark-model predictions.

## $\Sigma_b^*$ MASS

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VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>5830.32 ± 0.27 OUR AVERAGE</b>			
5830.28 ± 0.14 ± 0.24	<sup>1</sup> AAIJ	19A	LHCB $pp$ at 7, 8 TeV
5832.1 ± 0.7 <sup>+1.7</sup> / <sub>-1.8</sub>	<sup>2</sup> AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

<sup>2</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow K^- \pi^+$  decays.

### $\Sigma_b^{*-}$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>5834.74 ± 0.30 OUR AVERAGE</b>			
5834.73 ± 0.17 ± 0.25	<sup>1</sup> AAIJ	19A	LHCB $pp$ at 7, 8 TeV
5835.1 ± 0.6 <sup>+1.7</sup> / <sub>-1.8</sub>	<sup>2</sup> AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

<sup>2</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow K^- \pi^+$  decays.

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>-4.37 ± 0.33 OUR AVERAGE</b>	Error includes scale factor of 1.6.		
-4.45 ± 0.22 ± 0.01	<sup>1</sup> AAIJ	19A	LHCB $pp$ at 7, 8 TeV
-3.0 <sup>+1.0</sup> / <sub>-0.9</sub> ± 0.1	<sup>2</sup> AALTONEN	12F	CDF $p\bar{p}$ at 1.96 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

<sup>2</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow K^- \pi^+$  decays.

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

VALUE	DOCUMENT ID	TECN	COMMENT
<b>19.73 ± 0.18 ± 0.01</b>	<sup>1</sup> AAIJ	19A	LHCB $pp$ at 7, 8 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

### $m_{\Sigma_b^{*-}} - m_{\Sigma_b^-}$

VALUE	DOCUMENT ID	TECN	COMMENT
<b>19.09 ± 0.22 ± 0.02</b>	<sup>1</sup> AAIJ	19A	LHCB $pp$ at 7, 8 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

**$\Sigma_b^*$  WIDTH** **$\Sigma_b^{*+}$  WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>9.4 ± 0.5 OUR AVERAGE</b>			
9.34 ± 0.47 ± 0.26	<sup>1</sup> AAIJ	19A	LHCB $p p$ at 7, 8 TeV
11.5 <sup>+2.7</sup> <sub>-2.2</sub> <sup>+1.0</sup> <sub>-1.5</sub>	<sup>2</sup> AALTONEN	12F	CDF $p \bar{p}$ at 1.96 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

<sup>2</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow K^- \pi^+$  decays.

 **$\Sigma_b^{*-}$  WIDTH**

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>10.4 ± 0.8 OUR AVERAGE</b>			
10.68 ± 0.60 ± 0.33	<sup>1</sup> AAIJ	19A	LHCB $p p$ at 7, 8 TeV
7.5 <sup>+2.2</sup> <sub>-1.8</sub> <sup>+0.9</sup> <sub>-1.4</sub>	<sup>2</sup> AALTONEN	12F	CDF $p \bar{p}$ at 1.96 TeV

<sup>1</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow p K^- \pi^+$  decays.

<sup>2</sup> Measured using fully reconstructed  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$  and  $\Lambda_c^+ \rightarrow K^- \pi^+$  decays.

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>21.2 + 2.0 + 0.4</b> <b>- 1.9 - 0.3</b>	<sup>1</sup> AALTONEN	07K	CDF $p \bar{p}$ at 1.96 TeV

<sup>1</sup> Observed four  $\Lambda_b^0 \pi^\pm$  resonances in the fully reconstructed decay mode  $\Lambda_b^0 \rightarrow \Lambda_c^+ \pi^-$ , where  $\Lambda_c^+ \rightarrow p K^- \pi^+$ . Assumes  $m_{\Sigma_b^{*+}} - m_{\Sigma_b^+} = m_{\Sigma_b^{*-}} - m_{\Sigma_b^-}$ .

 **$\Sigma_b^*$  DECAY MODES**

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $\Lambda_b^0 \pi$	dominant

 **$\Sigma_b^*$  BRANCHING RATIOS**

$\Gamma(\Lambda_b^0 \pi)/\Gamma_{\text{total}}$	DOCUMENT ID	TECN	COMMENT	$\Gamma_1/\Gamma$
<b>dominant</b>	AALTONEN	07K	CDF $p \bar{p}$ at 1.96 TeV	

 **$\Sigma_b^*$  REFERENCES**

AAIJ	19A	PRL 122 012001	R. Aaij <i>et al.</i>	(LHCb Collab.)
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.)