# $\Sigma_b^*$

$I(J^P) = 1(\frac{3}{2}^+)$ Status: ***
*I*, *J*, *P* need confirmation.

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

## $\Sigma_b^*$ MASS

Assumes $m_{\Sigma_b^{*+}} - m_{\Sigma_b^+} = m_{\Sigma_b^{*-}} - m_{\Sigma_b^-}$

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

| *VALUE* (MeV) | *DOCUMENT ID* |
|---|---|
| **5829.0±3.4 OUR FIT** | |

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

| *VALUE* (MeV) | *DOCUMENT ID* |
|---|---|
| **5836.4±2.8 OUR FIT** | |

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

| *VALUE* (MeV) | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|
| **21.2±2.0 OUR FIT** | | | |
| **$21.2^{+2.0+0.4}_{-1.9-0.3}$** | [1] AALTONEN 07K | CDF | $p\overline{p}$ at 1.96 TeV |

[1] Observed four $\Lambda_b^0\pi^\pm$ resonances in the fully reconstructed decay mode $\Lambda_b^0 \to \Lambda_c^+\pi^-$, where $\Lambda_c^+ \to pK^-\pi^+$. 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

### $\Gamma(\Lambda_b^0\pi)/\Gamma_{\text{total}}$ $\Gamma_1/\Gamma$

| *VALUE* | *DOCUMENT ID* | *TECN* | *COMMENT* |
|---|---|---|---|
| **dominant** | AALTONEN 07K | CDF | $p\overline{p}$ at 1.96 TeV |

## $\Sigma_b^*$ REFERENCES

AALTONEN 07K PRL 99 202001 T. Aaltonen *et al.* (CDF Collab.)