

$B_{s2}^*(5840)^0$

$I(J^P) = 0(2^+)$ Status: ***
I, J, P need confirmation.

Quantum numbers shown are quark-model predictions.

$B_{s2}^*(5840)^0$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
5839.83 ± 0.19 OUR FIT Error includes scale factor of 1.2.			
5839.98 ± 0.20 OUR AVERAGE			
5839.99 ± 0.05 ± 0.20	AAIJ	130 LHCb	pp at 7 TeV
5839.6 ± 1.1 ± 0.7	¹ ABAZOV	08E D0	$p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
5839.7 ± 0.7	² AALTONEN	08K CDF	Repl. by AALTONEN 14i
¹ Observed in $B_{s2}^{*0} \rightarrow B^+ K^-$. Measured production rate of B_{s2}^{*0} relative to B^+ to be $(1.15 \pm 0.23 \pm 0.13)\%$.			
² Uses two-body decays into K^- and B^+ mesons reconstructed as $B^+ \rightarrow J/\psi K^+$, $J/\psi \rightarrow \mu^+ \mu^-$ or $B^+ \rightarrow \bar{D}^0 \pi^+$, $\bar{D}^0 \rightarrow K^+ \pi^-$.			

$m_{B_{s2}^{*0}} - m_{B_{s1}^0}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
• • • We do not use the following data for averages, fits, limits, etc. • • •			
10.5 ± 0.6	³ AALTONEN	08K CDF	Repl. by AALTONEN 14i
³ Uses two-body decays into K^- and B^+ mesons reconstructed as $B^+ \rightarrow J/\psi K^+$, $J/\psi \rightarrow \mu^+ \mu^-$ or $B^+ \rightarrow \bar{D}^0 \pi^+$, $\bar{D}^0 \rightarrow K^+ \pi^-$.			

$m_{B_{s2}^{*0}} - m_{B^+}$

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
560.54 ± 0.19 OUR FIT Error includes scale factor of 1.2.			
560.41 ± 0.13 ± 0.14	⁴ AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV
⁴ AALTONEN 14i reports $m_{B_{s2}^*(5840)^0} - m_{B^+} - m_{K^-} = 66.73 \pm 0.13 \pm 0.14$ MeV which we adjusted by the K^- mass.			

$B_{s2}^*(5840)^0$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1.47 ± 0.33 OUR AVERAGE			
1.4 ± 0.4 ± 0.2	AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV
1.56 ± 0.13 ± 0.47	⁵ AAIJ	130 LHCb	pp at 7 TeV
⁵ Uses $B_{s2}^*(5840)^0 \rightarrow B^{*+} K^-$ decays.			

$B_{s2}^*(5840)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $B^+ K^-$	dominant
Γ_2 $B^{*+} K^-$	

$B_{s2}^*(5840)^0$ BRANCHING RATIOS

$\Gamma(B^+ K^-)/\Gamma_{\text{total}}$ Γ_1/Γ

VALUE	DOCUMENT ID	TECN	COMMENT
dominant	AALTONEN	08K	CDF $p\bar{p}$ at 1.96 TeV
dominant	⁶ ABAZOV	08E	D0 $p\bar{p}$ at 1.96 TeV

⁶ Measured production rate of B_{s2}^{*0} relative to B^+ to be $(1.15 \pm 0.23 \pm 0.13)\%$.

$\Gamma(B^{*+} K^-)/\Gamma(B^+ K^-)$ Γ_2/Γ_1

VALUE	DOCUMENT ID	TECN	COMMENT
$0.093 \pm 0.013 \pm 0.012$	AAIJ	13O	LHCB pp at 7 TeV

$B_{s2}^*(5840)^0$ REFERENCES

AALTONEN	14I	PR D90 012013	T. Aaltonen <i>et al.</i>	(CDF Collab.)
AAIJ	13O	PRL 110 151803	R. Aaij <i>et al.</i>	(LHCb Collab.)
AALTONEN	08K	PRL 100 082001	T. Aaltonen <i>et al.</i>	(CDF Collab.)
ABAZOV	08E	PRL 100 082002	V.M. Abazov <i>et al.</i>	(D0 Collab.)