

**$B_{s2}^*(5840)^0$**  $I(J^P) = 0(2^+)$  Status: \*\*\*  
 $I, J, P$  need confirmation.

Quantum numbers shown are quark-model predictions.

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

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>5839.85±0.17 OUR FIT</b>	Error includes scale factor of 1.1.		
<b>5839.98±0.20 OUR AVERAGE</b>			
5839.99±0.05±0.20	AAIJ	130	LHCB $pp$ at 7 TeV
5839.6 ±1.1 ±0.7	<sup>1</sup> 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	<sup>2</sup> AALTONEN	08K CDF	Repl. by AALTONEN 14i
<sup>1</sup> Observed in $B_{s2}^{*0} \rightarrow B^+ K^-$ . Measured production rate of $B_{s2}^{*0}$ relative to $B^+$ to be $(1.15 \pm 0.23 \pm 0.13)\%$ .			
<sup>2</sup> 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	<sup>3</sup> AALTONEN	08K CDF	Repl. by AALTONEN 14i
<sup>3</sup> 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
<b>560.53±0.17 OUR FIT</b>	Error includes scale factor of 1.1.		
<b>560.41±0.13±0.14</b>	<sup>4</sup> AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV
<sup>4</sup> 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
<b>1.47±0.33 OUR AVERAGE</b>			
1.4 ±0.4 ±0.2	AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV
1.56±0.13±0.47	<sup>5</sup> AAIJ	130 LHCB	$pp$ at 7 TeV
<sup>5</sup> Uses $B_{s2}^*(5840)^0 \rightarrow B^{*+} K^-$ decays.			

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

Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$ $B^+ K^-$	dominant
$\Gamma_2$ $B^{*+} K^-$	

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

$\Gamma(B^+ K^-)/\Gamma_{\text{total}}$   $\Gamma_1/\Gamma$

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

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

$\Gamma(B^{*+} K^-)/\Gamma(B^+ K^-)$   $\Gamma_2/\Gamma_1$

VALUE	DOCUMENT ID	TECN	COMMENT
<b><math>0.093 \pm 0.013 \pm 0.012</math></b>	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.)