

**$B_1(5721)^0$**  $I(J^P) = \frac{1}{2}(1^+)$  Status: \*\*\*  
 $I, J, P$  need confirmation.

Quantum numbers shown are quark-model predictions.

 **$B_1(5721)^0$  MASS**OUR FIT uses mass differences measurements listed below to determine the mass  $m_{B_1(5721)^0}$ .

VALUE (MeV)	DOCUMENT ID
<b>5726.0 ± 1.3 OUR FIT</b>	Error includes scale factor of 1.2.

 **$m_{B_1^0} - m_{B^+}$** 

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
<b>446.7 ± 1.3 OUR FIT</b>	Error includes scale factor of 1.2.		
<b>441.5 ± 2.4 ± 1.3</b>	<sup>1</sup> ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
446.2 <sup>+1.9+1.0</sup> <sub>-2.1-1.2</sub>	<sup>1</sup> AALTONEN	09D CDF	Repl. by AALTONEN 14i
<sup>1</sup> Observed in $B_1^0 \rightarrow B^{*+} \pi^-$ .			

 **$m_{B_1^0} - m_{B^{*+}}$** 

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>401.4 ± 1.2 OUR FIT</b>	Error includes scale factor of 1.2.			
<b>402.8 ± 1.1 OUR AVERAGE</b>				
403.4 ± 0.7 ± 1.5	35K	<sup>2</sup> AAIJ	15AB LHCB	$pp$ at 7, 8 TeV
402.3 ± 0.9 <sup>+1.1</sup> <sub>-1.2</sub>		<sup>3</sup> AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV
<sup>2</sup> AAIJ 15AB reports $[m_{B_1^0} - m_{B^+}] - (m_{B^{*+}} - m_{B^+}) - m_{\pi^-} = 263.9 \pm 0.7 \pm 1.4$ MeV which we adjust by the $\pi^-$ mass and $(m_{B^{*+}} - m_{B^+}) = 45.01 \pm 0.30 \pm 0.23$ MeV. The masses inside the square brackets were measured for each candidate event.				
<sup>3</sup> AALTONEN 14i reports $m_{B_1(5721)^0} - m_{B^{*+}} - m_{\pi^-} = 262.7 \pm 0.9+1.1-1.2$ MeV which we adjusted by the $\pi^-$ mass.				

 **$B_1(5721)^0$  WIDTH**

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
<b>27.5 ± 3.4 OUR AVERAGE</b>	Error includes scale factor of 1.1.			
30.1 ± 1.5 ± 3.5	35k	AAIJ	15AB LHCB	$pp$ at 7, 8 TeV
23 ± 3 ± 4		AALTONEN	14i CDF	$p\bar{p}$ at 1.96 TeV

 **$B_1(5721)^0$  DECAY MODES**

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

## $B_1(5721)^0$ BRANCHING RATIOS

$\Gamma(B^{*+}\pi^-)/\Gamma_{\text{total}}$					$\Gamma_1/\Gamma$
<u>VALUE</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>	
seen	35K	AAIJ	15AB LHCb	$p\bar{p}$ at 7, 8 TeV	
dominant		AALTONEN	09D CDF	$p\bar{p}$ at 1.96 TeV	
<b>dominant</b>		<sup>4</sup> ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV	

<sup>4</sup> Observed in  $B_1^0 \rightarrow B^{*+}\pi^-$  with  $B^{*+} \rightarrow B^+\gamma$  and  $B^+ \rightarrow J/\psi\pi^+$ .

## $B_1(5721)^0$ REFERENCES

AAIJ	15AB	JHEP 1504 024	R. Aaij <i>et al.</i>	(LHCb Collab.)
AALTONEN	14I	PR D90 012013	T. Aaltonen <i>et al.</i>	(CDF Collab.)
AALTONEN	09D	PRL 102 102003	T. Aaltonen <i>et al.</i>	(CDF Collab.)
ABAZOV	07T	PRL 99 172001	V.M. Abazov <i>et al.</i>	(D0 Collab.)