

$B_2^*(5747)^0$

$$I(J^P) = \frac{1}{2}(2^+)$$

I, J, P need confirmation.

Quantum numbers shown are quark-model predictions.

 $B_2^*(5747)^0$ MASS

OUR FIT uses m_{B^+} , $m_{B_1^0} - m_{B^+}$, and $m_{B_2^{*0}} - m_{B_1^0}$ to determine $m_{B_2^*(5747)^0}$. The -0.659 correlation between statistical uncertainties of $m_{B_1^0} - m_{B^+}$ and $m_{B_2^{*0}} - m_{B_1^0}$ measurements reported by ABAZOV 07T is taken into account.

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>
5739.5 ± 0.7 OUR FIT	Error includes scale factor of 1.4.

 $m_{B_2^{*0}} - m_{B_1^0}$

<u>VALUE (MeV)</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
13.4 ± 1.4 OUR FIT	Error includes scale factor of 1.3.		
26.2 ± 3.1 ± 0.9	¹ ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●			
14.9 ^{+2.2+1.2} _{-2.5-1.4}	¹ AALTONEN	09D CDF	Repl. by AALTONEN 14I

¹ Observed in $B_2^{*0} \rightarrow B^{*+} \pi^-$ and $B_2^{*0} \rightarrow B^+ \pi^-$. **$m_{B_2^{*0}} - m_{B^+}$**

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
460.2 ± 0.6 OUR FIT	Error includes scale factor of 1.4.			
459.9 ± 0.8 OUR AVERAGE	Error includes scale factor of 1.8.			
460.18 ± 0.37 ± 0.33	17K	¹ AAIJ	15AB LHCB	$p\bar{p}$ at 7, 8 TeV
457.5 ± 1.2 ^{+0.8} _{-0.9}		² AALTONEN	14I CDF	$p\bar{p}$ at 1.96 TeV

¹ AAIJ 15AB reports $[m_{B_2^{*0}} - m_{B^+}] - m_{\pi^-} = 320.6 \pm 0.4 \pm 0.3$ MeV which we adjust by the π^- mass. The masses inside the square brackets were measured for each candidate event.² AALTONEN 14I reports $m_{B_2^*(5747)^0} - m_{B^+} - m_{\pi^-} = 317.9 \pm 1.2^{+0.8}_{-0.9}$ MeV which we adjusted by the π^- mass. **$B_2^*(5747)^0$ WIDTH**

<u>VALUE (MeV)</u>	<u>EVTS</u>	<u>DOCUMENT ID</u>	<u>TECN</u>	<u>COMMENT</u>
24.2 ± 1.7 OUR AVERAGE				
24.5 ± 1.0 ± 1.5	17K	AAIJ	15AB LHCB	$p\bar{p}$ at 7, 8 TeV
22 ⁺³⁺⁴ ₋₂₋₅		AALTONEN	14I CDF	$p\bar{p}$ at 1.96 TeV
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
22.7 ^{+3.8+3.2} _{-3.2-10.2}		AALTONEN	09D CDF	Repl. by AALTONEN 14I

$B_2^*(5747)^0$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
Γ_1 $B^+ \pi^-$	seen
Γ_2 $B^{*+} \pi^-$	seen

 $B_2^*(5747)^0$ BRANCHING RATIOS

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

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	17K	AAIJ	15AB LHCB	pp at 7, 8 TeV
seen		AALTONEN	09D CDF	$p\bar{p}$ at 1.96 TeV
seen		ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV

$\Gamma(B^{*+} \pi^-)/\Gamma_{\text{total}}$ Γ_2/Γ

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
seen	17K	AAIJ	15AB LHCB	pp at 7, 8 TeV
seen		AALTONEN	09D CDF	$p\bar{p}$ at 1.96 TeV
seen		ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV

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

VALUE	EVTS	DOCUMENT ID	TECN	COMMENT
0.82 ± 0.28 OUR AVERAGE				
0.71 ± 0.14 ± 0.30	17K	AAIJ	15AB LHCB	pp at 7, 8 TeV
1.10 ± 0.42 ± 0.31		¹ ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV

¹ Converted from measured ratio of $R = B(B_2^{*0} \rightarrow B^{*+} \pi^-) / B(B_2^{*0} \rightarrow B^{(*)+} \pi^-)$
 $= 0.475 \pm 0.095 \pm 0.069$.

 $B_2^*(5747)^0$ 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.)