

$B_2^*(5747)^0$ $I(J^P) = \frac{1}{2}(2^+)$ Status: ***
 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>
13.5 ± 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.			
$460.18 \pm 0.37 \pm 0.33$	17K	² AAIJ	15AB LHCB	pp at 7, 8 TeV
$457.5 \pm 1.2^{+0.8}_{-0.9}$		³ AALTONEN	14I CDF	$p\bar{p}$ at 1.96 TeV

² 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.³ 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				
$24.5 \pm 1.0 \pm 1.5$	17K	AAIJ	15AB LHCB	pp 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 $B^+ \pi^-$	dominant
Γ_2 $B^{*+} \pi^-$	dominant

 $B_2^*(5747)^0$ 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
dominant		AALTONEN	09D CDF	$p\bar{p}$ at 1.96 TeV
dominant		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
dominant		AALTONEN	09D CDF	$p\bar{p}$ at 1.96 TeV
dominant		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				
$0.71 \pm 0.14 \pm 0.30$	17K	AAIJ	15AB LHCB	pp at 7, 8 TeV
$1.10 \pm 0.42 \pm 0.31$		⁴ ABAZOV	07T D0	$p\bar{p}$ at 1.96 TeV

⁴ 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.)