

**$B_J(5840)^0$** 

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

$I, J, P$  need confirmation.

OMITTED FROM SUMMARY TABLE

Quantum numbers shown are quark-model predictions.

 **$B_J(5840)^0$  MASS**OUR FIT uses  $m_{B^+}$  and  $m_{B_J(5840)^0} - m_{B^+}$  to determine  $m_{B_J(5840)^0}$ .VALUE (MeV)DOCUMENT ID**5863±9 OUR FIT** **$m_{B_J(5840)^0} - m_{B^+}$** VALUE (MeV)EVTSDOCUMENT IDTECNCOMMENT**584±9 OUR FIT****584±5±7**

12k

<sup>1</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV

••• We do not use the following data for averages, fits, limits, etc. •••

610±22±7

12k

<sup>2</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV<sup>1</sup> AAIJ 15AB reports  $[m_{B_J^0} - m_{B^+}] - m_{\pi^-} = 444 \pm 5 \pm 7$  MeV which we adjust bythe  $\pi^-$  mass. The masses inside the square brackets were measured for each candidate event. The result assumes  $P = (-1)^J$  and uses two relativistic Breit-Wigner functions in the fit for mass difference.<sup>2</sup> AAIJ 15AB reports  $[m_{B_J^0} - m_{B^+}] - m_{\pi^-} = 471 \pm 22 \pm 7$  MeV which we adjust bythe  $\pi^-$  mass. The masses inside the square brackets were measured for each candidate event. The result assumes  $P = (-1)^J$  and uses three relativistic Breit-Wigner functions in the fit for mass difference. **$m_{B_J(5840)^0} - m_{B^{*+}}$** VALUE (MeV)EVTSDOCUMENT IDTECNCOMMENT

••• We do not use the following data for averages, fits, limits, etc. •••

584±5±7

12k

<sup>1</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV<sup>1</sup> AAIJ 15AB reports  $[m_{B_J^0} - m_{B^+}] - (m_{B^{*+}} - m_{B^+}) - m_{\pi^-} = 444 \pm 5 \pm 7$  MeVwhich we adjust by the  $\pi^-$  mass. The masses inside the square brackets were measured for each candidate event. The result assumes  $P = -(-1)^J$ ,  $(m_{B^{*+}} - m_{B^+}) = 45.01 \pm 0.30 \pm 0.23$  MeV, and uses three relativistic Breit-Wigner functions in the fit for mass difference. **$B_J(5840)^0$  WIDTH**VALUE (MeV)EVTSDOCUMENT IDTECNCOMMENT**127±17±34**

12k

<sup>1</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV

••• We do not use the following data for averages, fits, limits, etc. •••

107±20±34

12k

<sup>2</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV

119±17±34

12k

<sup>3</sup> AAIJ15AB LHCB  $pp$  at 7, 8 TeV

- <sup>1</sup> Assuming  $P = (-1)^J$  and using two relativistic Breit-Wigner functions in the fit for mass difference.  
<sup>2</sup> Assuming  $P = (-1)^J$  and using three relativistic Breit-Wigner functions in the fit for mass difference.  
<sup>3</sup> Assuming  $P = -(-1)^J$  and using three relativistic Breit-Wigner functions in the fit for mass difference.

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### $B_J(5840)^0$ DECAY MODES

	Mode	Fraction ( $\Gamma_i/\Gamma$ )
$\Gamma_1$	$B^{*+} \pi^-$	seen
$\Gamma_2$	$B^+ \pi^-$	possibly seen

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### $B_J(5840)^0$ BRANCHING RATIOS

$\Gamma(B^{*+} \pi^-)/\Gamma_{\text{total}}$					$\Gamma_1/\Gamma$
VALUE	EVTS	DOCUMENT ID	TECN	COMMENT	
<b>seen</b>	12k	AAIJ	15AB LHCB	$pp$ at 7, 8 TeV	

  

$\Gamma(B^+ \pi^-)/\Gamma_{\text{total}}$					$\Gamma_2/\Gamma$
VALUE		DOCUMENT ID	TECN	COMMENT	
<b>possibly seen</b>		<sup>1</sup> AAIJ	15AB LHCB	$pp$ at 7, 8 TeV	

<sup>1</sup> A  $B\pi$  decay is forbidden from a  $P = -(-1)^J$  parent, whereas  $B^* \pi$  is allowed.

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### $B_J(5840)^0$ REFERENCES

AAIJ	15AB JHEP 1504 024	R. Aaij <i>et al.</i>	(LHCb Collab.)
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