

$\Xi_b(5955)^-$

$J^P = \frac{3}{2}^+$

Status: ***

 $\Xi_b(5955)^-$ MASS

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
5955.7 ± 0.5 OUR AVERAGE			
5955.70 ± 0.03 ± 0.49	^{1,2} AAIJ	23AU LHCB	pp at 7, 8, 13 TeV
5955.4 ± 0.1 ± 0.5	^{1,3} AAIJ	15H LHCB	pp at 7, 8 TeV

¹ Observed in $\Xi_b^0 \pi^-$ channel with $\Xi_b^0 \rightarrow \Xi_c^+ \pi^-$ and $\Xi_c^+ \rightarrow p K^- \pi^+$.

² AAIJ 23AU measures $m(\Xi_b(5955)^-) - m(\Xi_b^0) - m(\pi^-) = 24.27 \pm 0.03 \pm 0.01$ MeV.

We have adjusted the measurement to our best values of $m(\Xi_b^0) = 5791.9 \pm 0.5$ MeV, $m(\pi^-) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.

³ AAIJ 15H measures $m(\Xi_b(5955)^-) - m(\Xi_b^0) - m(\pi^-) = 24.96 \pm 0.12 \pm 0.06$ MeV.

We have adjusted the measurement to our best values of $m(\Xi_b^0) = 5791.9 \pm 0.5$ MeV, $m(\pi^-) = 139.57039 \pm 0.00018$ MeV. Our first error is their experiment's error and our second error is the systematic error from using our best values.

 $\Xi_b(5955)^-$ WIDTH

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
1.43 ± 0.08 ± 0.08	¹ AAIJ	23AU LHCB	pp at 7, 8, 13 TeV
• • • We do not use the following data for averages, fits, limits, etc. • • •			
1.65 ± 0.31 ± 0.10	¹ AAIJ	15H LHCB	pp at 7, 8 TeV

¹ Observed in $\Xi_b^0 \pi^-$ channel with $\Xi_b^0 \rightarrow \Xi_c^+ \pi^-$ and $\Xi_c^+ \rightarrow p K^- \pi^+$.

 $\Xi_b(5955)^-$ DECAY MODES

Mode	Fraction (Γ_i/Γ)
$\Gamma_1 \quad \Xi_b^0 \pi^- \times B(\bar{b} \rightarrow \Xi_b^*(5955)^-)/B(\bar{b} \rightarrow \Xi_b^0)$	(20.7 ± 3.5) %

 $\Xi_b(5955)^-$ BRANCHING RATIOS

$\Gamma(\Xi_b^0 \pi^- \times B(\bar{b} \rightarrow \Xi_b^*(5955)^-)/B(\bar{b} \rightarrow \Xi_b^0))/\Gamma_{\text{total}}$	Γ_1/Γ		
VALUE	DOCUMENT ID	TECN	COMMENT
0.207 ± 0.032 ± 0.015	¹ AAIJ	15H LHCB	pp at 7, 8 TeV

¹ Observed in $\Xi_b^0 \pi^-$ channel with $\Xi_b^0 \rightarrow \Xi_c^+ \pi^-$ and $\Xi_c^+ \rightarrow p K^- \pi^+$.

 $\Xi_b(5955)^-$ REFERENCES

AAIJ	23AU PRL 131 171901	R. Aaij <i>et al.</i>	(LHCb Collab.)
AAIJ	15H PRL 114 062004	R. Aaij <i>et al.</i>	(LHCb Collab.)